

I—STUDIES IN THE CICINDELIDÆ AND CARABIDÆ OF AMERICA.

Our Cicindelidæ have been considered more or less seriously by a number of authors recently, but the Carabidæ have been singularly neglected—even those genera composed of conspicuous species. No good tabular key to the species of *Carabus* or *Calosoma*, as represented in our fauna, has ever been published, and there is no evidence to show that the material in most of our rather numerous collections has been so much as carefully observed or accurately segregated into specific forms. No new *Nebria* has been brought to notice for nearly a generation and the same statement can be made regarding numerous other important genera. All this points only too clearly to the paucity of workers and the vast field that there is to cover. The active describers and classifiers of our Coleoptera as a life specialty, from Thomas Say to the present time, could be counted on the fingers of both hands, with some to spare. It is very remarkable that a subject so fascinating, so broadening to the mind and withal so accessible to everyone, should be so disregarded, ignored or even ridiculed by the vast majority of educated mankind.

CICINDELIDÆ.

Omus Esch.

Leaving out of consideration for the present the four very distinct species *dejeani*, *submetallicus*, *vandykei* and *ambiguus*, the last three of which I do not know in nature, the remaining described forms may be assigned to eleven groups, each of which conforms in general characters and habitus to a well defined species forming the primary type of the group and including other forms which may be considered subspecific in some cases; these eleven type species are *californicus*, *audouini*, *borealis*, *lecontei*, *edwardsi*, *punctifrons*, *sequoiarum*, *horni*, *parvicollis*, *intermedius* and *lævis*. The *californicus* group includes also the subspecies *sculptilis* Csy. The *audouini* group includes also *parvulus* n. subsp. The *borealis* group

includes in addition *mimus* Csy., *humeroplanatus* W. Horn and *oregonensis* described below. The *lecontei* group contains in addition *elongatus*, *dunni*, *regularis* and *maritimus* Csy., and *fuchsi* W. Horn, the last of which I have not seen and possibly may have re-described under some one of the other names; *regularis* may perhaps be the same as *lecontei*, but it does not conform very well with the description; I do not know the precise taxonomic status of the various forms or of those attached to the following group. The *edwardsi* group will comprise also *montanus*, *lucidicollis*, *brunnescens* and *lobatus* Csy. The *punctifrons* group contains small forms, of which also *confluens*, *fraterculus* and *degener* Csy., have been defined. The *sequoiarum* group includes also *lugubris* Csy., with subspecies *sierricola* defined below. The *horni* group includes besides that species *collaris* and *compositus* Csy. The *parvicollis* group includes also *procerus* Csy., and the one defined below under the name *spissipes*. The *intermedius* group comprises in addition *cribripennis* and *blaisdelli* Csy., one of which may be the true *intermedius*, as I have not seen the type of that species. Finally, the *lævis* group includes *tularensis* Csy., of specific value, to which is to be attached *gracilior* as a subspecies.

Omus audouini ssp. *parvulus* nov.—Similar to *audouini* but smaller, anteriorly more slender and with shorter and more slender antennæ, the last palpal joint shorter; head and labrum similar, the front smoother, with the sparse punctures more evident; prothorax similar in general form and lateral convexity but with the vermiculate sculpture almost completely obsolete laterally as well as medially; elytra nearly similar but with rather closer and feebler sculpture, the foveæ less evident, tarsi more slender, the posterior much more notably exceeding the tibiæ in length; copulatory spicule bent, flattened and rather broad apically. Length (♂) 13.0 mm.; width 4.5 mm. Oregon (locality not recorded).

The relatively much longer hind tarsi, small size, more slender form, shorter and more slender antennæ and nearly smooth pronotum, are features which will render this form very easily identifiable among the allies of *audouini*.

Omus oregonensis n. sp.—Body in sculpture resembling *mimus* Csy., but much shorter in form; head and labrum similar, the eyes not quite so prominent; prothorax similar and deeply vermiculato-rugose throughout but evidently wider than the head, and not subequal in width to the latter as it is in *mimus*; elytra much shorter, evenly oval, widest at the middle, the sculpture nearly similar but not quite so strong; legs not so stout, the anterior femora much thinner; copulatory spicule apically

rather narrow and forming an even arc from the bulbous part to the tip. Length (♂) 13.0 mm.; width 5.0 mm. Oregon (Josephine Co.). Nunenmacher.

This is the species that was erroneously identified by Dr. W. Horn as *mimus*. It is not only more abbreviated and with relatively smaller head, less convex eyes and very much shorter elytra, but differs conspicuously in the form of the copulatory spicule, which in *mimus* has the apical part broader, shorter, perfectly rectilinear and parallel-sided from the bulbous part to the tip. It is for this reason that I am forced to regard *oregonensis* as a species and not as a subspecies of *mimus*.

Humeroplanatus is closely allied to *borealis* but is sufficiently distinct in its more abbreviated, less convex form, more rounded sides of the prothorax, rather shorter antennæ and less convex, more gradually declivous and much less sculptured humeral region of the elytra; the general sculpture of the latter also is feebler and sparser, especially toward the suture. This *borealis* group is more northern in distribution and does not spread far to the southward in California; my series of four examples of *humeroplanatus* was collected by Nunenmacher in Del Norte Co.; all the others are from Oregon.

Omus lugubris ssp. *sierricola* nov.—Form nearly as in *lugubris* but with relatively smaller head and prothorax and evenly oblong-oval, broader elytra, widest at the middle and evidently less coarsely punctate. Length (♂) 17.0 mm.; width 6.5 mm. California. Levette collection.

This is the second specimen of the two serving as the original types of *lugubris* (Ann. N. Y. Acad. Sci., IX, p. 290); it evidently represents a distinct form. The head and prothorax in *lugubris* are much larger when compared with the hind body, more nearly as in *sequoiarum*, from which it differs in having the elytra widest well before the middle and thence gradually, arcuately tapering to the apex. In *lugubris* the acute lateral margins of the pronotum attain the base, while in *sierricola* they end abruptly a long distance from the base.

Omus spissipes n. sp.—Form somewhat as in *parvicollis* but larger, stouter and more ventricose, deep black, sublutaceous; head and labrum as in that species, except that the labrum is more rectilinearly truncate, the sublateral sinuations very feeble; mandibles stouter; prothorax similar in form but larger and much more distinctly vermiculato-rugose, the

acute lateral margins fully attaining the base; elytra similarly elongate, convex and widest behind the middle, the slightly converging sides feebly and evenly arcuate thence to the base, without humeri, more rapidly rounding and converging behind; punctures small, feeble and sparse, a little stronger and less sparse laterally; legs stouter, third joint of the hind tarsi barely three times as long as wide. Length (σ^7) 19.5 mm.; width 6.6 mm. California (Tulare Co.)—without more definite record.

Differs from *parvicollis* in its larger size, more obovoidal hind body, stouter mandibles, larger prothorax, with the converging sides in basal half straight, and in the stouter legs and tarsi, the legs being similarly notably long however. The large female noted under my description of *parvicollis* is the female of *procerus* Csy.

Dromochorus Guér.

It is difficult to understand how the species that I described under the name *sericeus* could have been united with *belfragei*. Its much shorter and broader form and deep clear-cut punctures of the elytra, impart so radically different a habitus that only surmise and conjecture on the part of those not knowing the species could have led to that conclusion. As to *pruininus*, the very conservative might consider it a subspecies of *belfragei*, but the much larger size, very much stouter form and evident purple bloom, wanting in *belfragei*, would, at any rate, make it a very distinct subspecies—by no means a synonym.

Cicindela Linn.

The species described by Mr. Leng under the names *robusta* and *bowditchi* are wholly unknown to me and are decidedly doubtful as to position in the series; they evidently do not belong together, but I can state nothing further at present. The other species can be assigned to the following 35 groups, which coincide generally with those defined by Mr. Leng though with some departures in sequence or organization, as will be noted. No attempt has been made to indicate the taxonomic rank of the names given under the various groups; they are however all species or subspecies and synonyms are not included; those to be described further on in the present paper are indicated by an asterisk.

1—*Celeripes* group.

Comprises so far as known only *celeripes* and *cursitans* of LeConte.

2—*Unipunctata* group.

Consists of *unipunctata* Fabr. alone. Mr. Leng gives no record of its flying and my material is too scanty to ascertain the development of the wings; they are probably vestigial to some extent.

3—*Obsoleta* group.

Composed of *obsoleta* Say, *vulturina* and *prasina* Lec., and *santaclaræ* Bates. The last is a good species, distinct from *vulturina* in having the fascia very much less oblique and with the outer and inner ends much more swollen; both of these are strong fliers but *prasina* probably has less developed wings. The size throughout is unusually large.

4—*Longilabris* group.

This group is well defined and consists of *longilabris* Say, *montana* Lec., *albilabris* Kirby, *perviridis* and *laurenti* Schaupp., *oslari* and *vestalia* Leng, *nebraskana* Csy., *spinitarsis**, *canadensis**, *ostenta**, and *placereensis**. The allies of *longilabris* are numerous and the group was less carefully elaborated by Mr. Leng than some others; for example, it does not seem to have occurred to the author that the formation of the labrum is different in the male and female. In this group the tip is usually tridentate in the male, with the lateral teeth broader and more obtuse and purely unidentate in the female, though this rule by no means applies to the entire family; here for instance it is more dentate in the male than in the female as a rule, while in some other groups, such as *rufiventris*, it is the female that has the more strongly dentate labrum. *Nebraskana* is a subspecies of *montana* and has the labrum similarly black in the female and white in the male; the body is however smaller and more slender and the antennæ less stout than in *montana* and it occurs at lower elevations and more especially in the prairie country. The coloration of the labrum appears to be important, but Mr. Leng does not seem to have associated it with sex and implies that it is therefore a very inconstant and unreliable character; more material than I have at present would be desirable however in order to arrive at a satisfactorily final conclusion.

5—*Sexguttata* group.

Resembles the preceding very strikingly in facies, in the hairless front in both sexes, well developed tarsi, form of maculation and in many other features, but differs in the shorter labrum and finer, feebler sculpture. It comprises *sexguttata* and *violacea* Fabr., *patruela* and *consentanea* Dej., *harrisi* Leng and *levettei* and *tridens* Csy. *Tridens* is the immaculate bright pure green form found at Onaga, Kansas; it differs from the immaculate forms of *levettei*, which occur especially in the south, in its shorter and broader outline. The true *violacea* I have not seen; it may possibly be one of the *scutellaris* group.

6—*Nigrocærulea* group.

I would associate together in this group *nigrocærulea* Lec. and *feminalis*, *triplicans*, *snowi*, *velutoidea*, *tumidifrons*, *filitarsis* and *aterrima* Csy., also *townsendi**; probably *viatica* Chev., *euthales* Bates, of Durango, Mexico, and other similar forms are to be included also. The elytral sculpture is always feeble, often obsolescent, the tarsi long, the front generally bald in both sexes, the size of the body small or moderate, the elytral apices non-serrulate and the pale maculation wanting or small and disconnected. The taxonomic forms, whether species or subspecies, are numerous, but individuals are comparatively very rare in collections; the types of *tumidifrons*, *filitarsis* and *aterrima* are from Chihuahua.

7—*Scutellaris* group.

This is a well defined group, in which the body becomes unusually short and stout in build, the front pubescent in the male, the elytral punctures nearly obsolete and the tarsi only moderate in length. The species and subspecies are *scutellaris* Say, *rugifrons*, *modesta* and *unicolor* Dej., *lecontei* Hald., *nigrior* Schaupp and *criddlei**. No one seems to know as yet the true relationships of these various developments, but it should be said that they hold as truly to the typical form and coloration in each case as do the species of any other natural group. There is nothing to be gained and much complication of our nomenclature to be incurred by considering them, provisionally at least, as anything else than species. The same remark applies to other groups such as *purpurea* and *blanda*.

8—*Pulchra* group.

A small group, having many of the characters of the preceding, being almost glabrous and with variable front in regard to pubescence, but the tarsi are unusually long and the body narrower and more elongate; the elytra are generally immaculate and peculiarly sculptured, the punctures distinct basally but rapidly becoming obsolete posteriorly. The species so far as known are *pulchra* Say, *pimeriana* Lec. and *horni* Schaupp, also the Mexican *ritteri* Bates.

9—*Fulgida* group.

In this group the body is of moderate or small size, with fine and moderate to feeble sculpture, short labrum and more or less pubescent front, generally in both sexes; it is principally distinguished as a group, however, by the unusually short tarsi, *fulgida* itself being the least typical of all in this respect. The group includes *fulgida* Say, *willistoni*, *latesignata* and *hyperborea* Lec., *limbigera* G. & H. (*limbata* Say—præocc.), *senilis* G. H. Horn, *pseudosenilis* W. Horn, *tenuicincta* Schaupp, *cochisensis*—the only immaculate form—*echo* and *amadeensis* Csy., *lantzi* E. D. Harris, as well as *nympha** and *obliviosa**. These species and subspecies are distributed among a number of small groups by Mr. Leng, but this seems to be unnecessary, as there are strong bonds of affinity among them, especially in general style of ornamentation, sculpture and tarsal structure; there is however marked diversity in external habitus.

10—*Pusilla* group.

A group of small species, one of the chief peculiarities of which is the tendency to unusual elongation of the humeral lunule; in most of its other characters however it reproduces the preceding group in great measure. The species are *pusilla* and *terricola* Say, *cinctipennis*, *cyanella* and *imperfecta* Lec., *lunalonga* Schaupp and *tuolumnæ* Leng. Mr. Woodgate sent me a very large series of *cinctipennis*, from Jemez Springs, New Mexico, nearly all of which are of a dull coppery-brown color, contrasting in this respect with a series from Dakota and Montana, all of which are dull green. I have not seen *pusilla*, *terricola*, *cyanella* or *lunalonga*, but have the others. *Tuolumnæ* is a true species and not a variety.

11—*Purpurea* group.

This is a very large section of the genus, characterized by a rather broad, moderately convex, distinctly and evenly sculptured body, with moderate labrum, hairy front in both sexes, more metallic and smoother elytral side-margins, well developed tarsi and rather deficient maculation as a rule, this only very rarely expanding along the sides to form an entire white margin as in *cimarrona*, seen in an incipient stage in *auguralis*. This and the two following groups exhibit a progressive posterior inflexion of the humeral lunule, scarcely at all evident here, more pronounced in *formosa* and very pronounced in *tranquebarica*. The forms attachable to the *purpurea* group are *purpurea* Oliv., extending from the Atlantic coast to the plains of Kansas but replaced by other forms in the Rocky Mountains, *decemnotata* Say, *splendida* Hentz, *limbalis* Klug, *amaena*, *spretta*, *auduboni* and *cimarrona* Lec., *graminea* Schaupp, *transversa*, *ludoviciana* and *sierra* Leng, *lauta* and *denverensis* Csy., and including some less pronounced forms, *auguralis**, *ardelio**, *franciscana**, *inducta**, *awemeana**, *eldorensis** and *albertina**. *Denverensis* and *sierra* form a very distinct subgroup and are pronouncedly distinct species, not at all closely allied to any others; the penultimate joint of the labial palpi is wholly pale in the male of both, which withdraws them widely from the more typical species, but in *limbalis* this joint is also pale or piceous in the male, though black in the allied *awemeana*. *Sierra* was placed among the allies of *tranquebarica* by Leng but in my opinion incorrectly.

12—*Formosa* group.

The less numerous species of this group have most of the characters of the preceding but with a more developed labrum, except in *admiscens*, plumper body in one section, a more convex upper surface, with broad white lateral margins and more inflexed humeral lunule. The various forms are *formosa* Say, *generosa* Dej., *venusta* Lec., *manitoba* Leng and *luxuriosa**, *versuta**, *gracilentia** and *admiscens**. *Latesignata* and *tenuicincta* placed here by Leng belong very evidently with the *fulgida* and *willistoni* series, not only because of habitus but as proved conclusively by the very short hind tarsi.

13—*Tranquebarica* group.

In this group the humeral lunule becomes greatly inflexed and posteriorly oblique, most of the other characters being as in the two preceding groups. It includes four evident subgroups, typified by the four very isolated species *tranquebarica*, *hyperborea*, *diffRACTA* and *plutonica*. The species and subspecies are *tranquebarica* Herbst (*vulgaris* Say and *obliquata* Dej.), *kirbyi* Lec. (*obliquata* Kirby), *vibex* G. H. Horn (? *roguensis* E. D. Harris), *diffRACTA* and *plutonica* Csy., *horiconensis* and *bellissima* Leng and *viridissima* Fall; also *turbulenta** and *crinifrons**. *Sierra* Leng belongs to the *purpurea* group; it is an isolated and valid species and not by any means a variety of anything.

14—*Repanda* group.

This is a very large group, characterized by a smaller and shorter body than in the three preceding and a humeral lunule which is only moderately inflexed posteriorly and to nearly similar a degree as at base, most frequently resolved into two dots; the sculpture, pubescence and other characters are nearly as in the preceding. The various forms are *repanda* and *duodecimguttata* Dej., *oregona* Lec., *ancocisconensis* Harris, *unijuncta*, *depressula* and *scapularis* Csy., *eureka* Fall and *maricopa* Leng, as well as *bucolica**, *sterope**, *quadripennis**, *ovalipennis**, *sonoma**, and *audax**. *Depressula* and *scapularis* form a well characterized subgroup in having the elytra more oblong, less convex, more coarsely punctured and of a vivid green that does not appear in any other forms. *Ancocisconensis* was made the type of a separate group, far removed from *repanda*, by Leng, but I cannot appreciate the reasons for this disassociation. *Unijuncta* is much smaller and narrower than *repanda*, in addition to the different form of maculation, and I have little or no doubt now that it is a distinct species; it has probably not been correctly identified by Mr. Leng.

15—*Hirticollis* group.

The habitus here is rather different from *repanda* and allies, owing to the more inflated body and, more especially, because the humeral lunule has a distinctly different form, the posterior inflexed part being much longer, straight and transverse to somewhat anteriorly

oblique. The group includes *hirticollis* Say, *gravida* Lec., *ponderosa* Thoms.—all distinct species—and *abrupta**—a subspecies.

16—*Tenuisignata* group.

Consists of *tenuisignata* Lec., alone, so far as known. It is more slender than any of the immediately preceding groups and differs greatly in having the front bald in both sexes; it has a well developed reflexed fascia and humeral lunule as in the *repanda* group, but with all the markings very slender. There are some more or less similar species in the Mexican fauna—for example, *fera* Chev. This is abundant in Durango and has a perfectly bald front in both sexes, excepting one or two setæ near the eyes and is therefore properly a member of the *repanda* group, the markings being similar.

17—*Tortuosa* group.

In this group the body is rather small, the front bald in both sexes and the elytral markings are very fine but much extended, the fascia assuming an oblique serpentine course almost attaining the suture near posterior fourth; the humeral lunule is nearly as in the *hirticollis* group, except that the straight inflexed posterior part is more posteriorly oblique and the hind part of the marginal dilatation at the point of origin of the fascia is dilated, tending to isolate itself to form the posterior marginal spot of the *rufiventris* group. The species are few in number, comprising *tortuosa* Dej. and *sigmoidea* and *serpens* of LeConte; *serpens* is by no means a synonym of *tortuosa*, being a very much smaller, more slender and more delicate species.

18—*Gabbi* group.

The body is of nearly similar size and outline and the front is similarly nude, but the elytral markings are much heavier and of radically different development, the anterior extension from the outer part of the apical lunule being more elongate than in any other known species, and, between it and the suture, is projected the very long posterior ramus of the medial fascia; the only species is *gabbi* Horn, from San Diego, California.

19—*Dorsalis* group.

The development of elytral ornamentation here is as isolated as that of *gabbi* but, though remindful of it in some respects, is not at all homologous; here it is the humeral lunule that is greatly extended, being flexed posteriorly along the suture to the middle, where it sometimes joins the much extended anteriorly hamate extremity of the transverse band, seen in feeble development in the *blanda* type; the head here is nude in both sexes as in *gabbi*. The elytra sometimes become entirely white, except narrowly along the suture. In some cases, such as *apricoidea*, intermediates seem to be wanting and there is therefore a suggestion of true dimorphism, a condition particularly characteristic of sea-beach species. The species and subspecies are *dorsalis* Say, *Saulcyi* Guér., *media* Lec., *semipicta* Csy., *munifica** and *apricoidea**.

20—*Pamphila* group.

A single isolated species constitutes this group at present—*pamphila* Lec. The head is large and hairless, the hind body short and broad, somewhat as in the preceding group, but the markings are of the *pratextata* order.

21—*Circumpicta* group.

The head is hairless and well developed, the body elongate, the elytra with entirely white margins, the middle band oblique, straight, sometimes long, but rudimentary in the type species, and the legs are long. The various forms are *circumpicta* Laf., *californica* Mén., *pratextata* Lec., and *ambiens**, *inspiciens**, *fulgoris** and *stringens**.

22—*Togata* group.

In some respects this is remindful of the *circumpicta* group, the elytral margins being broadly white, but the tarsi are shorter and the head hairy. The species known so far are *togata* Laf., *apicalis* W. Horn and *globoicollis**.

23—*Lepida* group.

This is one of the most isolated types of the genus and I am unable to trace the development of its type of ornamentation from any of the others so far known. The form of the white lateral margin

and internal offsets is manifestly of the *blanda* type, but there is no other species having the sutural white vitta which here expands greatly toward base. The short broad hind body recalls that of *pamphila*, but the very pallid legs and antennæ are peculiar and the tarsi are rather short; the head is hairy and the legs are unusually pubescent throughout. The known components of the group are *lepida* Dej. and *insomnis**

24—*Gratiosa* group.

The general outline here changes to the elongate form characterizing the *marginata* group and sexual modifications of the elytral apices, so greatly developed there, become apparent here also, but the scheme of ornamentation is different; it is peculiar to the group but betrays some affiliation with the *prætextata* type. The head is very densely hairy and the legs are very long and slender and much more pubescent than in any other of the neighboring groups, except the preceding. The only three known species are *gratiosa* Guér., *hirtilabris* Lec. and *smythi* E. D. Harris, of the southern Atlantic and Gulf regions.

25—*Marginata* group.

This is one of the larger of the American groups of the genus, and as here organized comprises several of the smaller groups proposed by Mr. Leng. There is evidently a strong bond of affinity between all of the species as shown especially by the general habitus, which is similar throughout. The head is hairy, the legs long but not pubescent, the elytra elongate and the modification of the elytral apices in the female always evident and sometimes very radical, either in the abrupt sinuation of the oblique apical edges as in *cuprascens*, or of the apices themselves as in *marginata*; in *blanda* these modifications are barely traceable, but this species is distinguished by a formation of the mandibles that does not seem to have been referred to; they are very long and slender, with the teeth grouped nearer the base than usual. This group will include *marginata* Fabr., *blanda* Dej., *hamata* Brullé, *cuprascens*, *macra*, *wapleri*, *nevadica* and *sperata* Lec., *puritana* Horn, *inquisitor* Csy., *knausi* Leng, *marutha* Dow and also *mercurialis**, *amnicola** and *mundula**. For many years I have had an example of *marutha*

in my cabinet, regarding it simply as a green specimen of *sperata*, but on closer observation it is seen to have a broader form and the external angulation of the female elytra is much more obtuse than in *sperata*.

The mandibles in *Cicindela* are seldom observable throughout their length when attached to the head, but where they are fully exposed to view they may be seen to be remarkable in dentition. The right mandible has the usual three teeth near the middle of its length, the middle one sometimes very much smaller than the others, but there is another very prominent tooth at the base which is not single, but double, the two teeth generally being of the same prominence and placed side by side on a transverse line of the inner edge of the mandible; the opposite tooth of the left mandible is also duplex but not so strongly, and when the mandibles are closed fits into the corresponding tooth of the right mandible, thus securely locking them. I am unable at present to state how constant this formation may be throughout the genus, but it is analogous in all that I have been able to examine, and the basal paired tooth of the right mandible becomes very prominent in the *limbata* group as well as in *ponderosa*.

26—*Punctulata* group.

We begin here a rather abrupt departure from any of the preceding groups and again have to deal with subglabrous forms; they however differ from the earlier groups of the genus in having the subsutural line of foveæ better developed and include nearly all those forms having a rufous abdomen. The *punctulata* type is so well known as to need no present comment, further than to say that the abdomen, as in the two following groups, is not rufous but black and metallic as usual. This group comprises *punctulata* Oliv. (*micans* Fabr.), *chihuahuæ* Bates (*micans* Shpp., Leng nec Fabr.) and *boulderensis* Csy.

27—*Severa* group.

The body is larger in this type than in the preceding and gigantic when compared with the following group, smooth, subglabrous, sometimes with sericeous lustre, with large head and very prominent eyes. The only two known species are *severa* Laf. and *striga* Lec.

28—*Viridisticta* group.

The species here are among the most minute of the genus, rather slender, usually with the angulate fascia and apical lunule distinct and often with a small discal pale spot near basal third, the punctures conspicuously blue or green. *Viridisticta* does not occur north of Mexico and our species, generally so identified, is *arizonensis* Bates. The beautiful little Cuban *viridicollis* Dej., also belongs here and I also have two examples of a Panama species which is closely allied but very differently colored.

29—*Abdominalis* group.

The abdomen in this group is generally red, as it is in all the succeeding groups except *flavopunctata*, where it is only occasionally red and in *lemniscata*, which I prefer to place last in the series. The surface is polished in this group as in the *severa* group, and the subsutural line of foveæ is even more developed; the species are of very small size and are subglabrous. Those forms known thus far are *abdominalis* Fabr., *scabrosa* Schaupp, *extenuata** and *faceta**.

30—*Politula* group.

This group has the body much broader than in the three or four preceding, nearly as in the *rufiventris* group in this respect, but with the surface polished as in the preceding and not dull as in all the following except *lemniscata*. It is also distinguishable by an absence of all pale maculation, excepting an apical lunule, which may be only partially represented or wanting. The specific or subspecific forms are *politula* Lec., and *cribrum**.

31—*Rufiventris* group.

The type of *rufiventris* Dej., as explained by Bates (Tr. Ent. Soc. Lond., 1890, p. 503) is from St. Domingo; it has a complete apical lunule and three detached spots in triangle on each elytron. It is possible of course that Dejean's type was not correctly labeled, for we have a form in Pennsylvania and Ohio which has a complete apical lunule and the three more anterior spots as the sole maculation, excepting a small humeral spot, and this has always been identified in our collections as *rufiventris* Dej. The normal maculation of the group consists of a humeral and an apical lunule,

an obliquely sigmoid median band, a subapical spot near the outer end of the apical lunule and a marginal spot near apical third. According to Bates the true *16-punctata* of Klug (*rubri-ventris* Chev.) is 9-10 mm. in length, generally dark and bluish in tint and the markings form on each elytron eight equal-sized spots, the two median sometimes connected by a thin line. It occurs chiefly in the vicinity of the City of Mexico. The labrum is scarcely at all produced in the middle, even in the female. This definition does not suit the Arizona and New Mexican form that we are accustomed to call *16-punctata*, as in fact is recognized by Bates (l. c.), but he does not designate this form by name. Our species and subspecies of this group are numerous and comprise *rufiventris* and *hentzi* Dej., *cumatilis* and *hæmorrhagica* Lec., *pacifica* Schaupp, and *arizonæ* Wick.; also *woodgatei**, *collusor**, and *sonorana** described below.

32—*Flavopunctata* group.

The chief differences between this group and the preceding lie in the usually black abdomen, in the absence of the marginal spot of the elytra near apical third and the presence of only the outer end of the apical lunule, which forms a clearly defined rounded marginal spot; it is essentially a neotropical group, only one species crossing the Mexican border into Texas—the *rectilatera* of Chaudoir. I have also a good series of *chiapana* Bates, from Hunduras, and of an undescribed but very similar form from Guerrero. The dark abdomen in *rectilatera* misled Mr. Leng, who placed the species far out of its proper position in the series. *Chiapana* Bates, is almost perfectly similar though much smaller and has a bright red abdomen as in the *rufiventris* group. The color of the abdomen also becomes largely pale in some Mexican forms of the *repanda* group; so the pale color of the abdomen is not a group character.

33—*Sommeri* group.

This group is closely allied to the preceding but the hind body is more inflated and the elytral markings become very broad and confluent, consisting of a broad but short humeral lunule, a broad straight oblique fascia from the margin nearly to the suture and a large circular marginal spot in the same position as the subapical

spot of the *flavopunctata* group. My series of *sommeri* Mann., is from Sonora, but Mr. Leng states that it has been reported from the vicinity of San Diego, Cal., by Henry Edwards.

34—*Marginipennis* group.

A small group of very distinct species, elongate, subparallel in form, subglabrous and with dull lustre, the elytra rather narrowly but continuously margined throughout externally with white, having an internal medial offset, short in the type species but long in *schauppi*. The abdomen is bright red, but in the recently described *segnis*, which I venture to place in this group because of its external resemblances, the abdomen is apparently not red but metallic green. The only three species are *marginipennis* Dej., *schauppi* Horn and *segnis* E. D. Harris. In the first the labrum is short, not prominent medially but with a distinct median tooth; in *schauppi* it is much longer, more prominent, the medial lobe arcuately truncate and with a very minute tooth.

35—*Lemniscata* group.

The singular small parallel and bright cupreous-red *lemniscata* Lec., is the only species of this group. The labrum is but feebly sinuate medially at apex and from the middle of the sinus projects a small acute tooth. In view of this, as well as the statement above made in regard to *schauppi*, I am unable to understand what Mr. Leng could have had in hand when he drew the diagrams of the labrum of *lemniscata* and *schauppi* on plate II of his memoir (Tr. Am. Ent. Soc., 1902), as the form of the labrum in these cases is nearly similar in the sexes. The white vitta of *lemniscata*, which is discal and not marginal, may be homologous with the wonderful solar spectrum arrayed in a similarly placed longitudinal vitta in the Mexican *aurora* Thoms., except that in the former the white vitta joins the outer end of a regular apical lunule, while in *aurora*, *radians* and other similar forms it bends inwardly to the suture posteriorly, without approaching the margin. At any rate *lemniscata* has no ally in our fauna and I would not know where to place it in the succession here proposed.

Remarks and Descriptions.

4—There are at least three evident subgroups of the *longilabris* type baseable upon *longilabris*, *montana* and *perviridis*. An example from Manitoba in my collection is smaller and of narrower form than *longilabris* and probably represents *albilabris* of Kirby, a valid subspecies; *laurenti* is another subspecies of the *longilabris* subgroup, being of a paler brown, denser and more opaque sculpture and broader elytral markings; the two forms described by Mr. Leng are not at hand, but they also belong to the *longilabris* type without much doubt. Of the taxonomic value of the following I am in some doubt but will describe it as a species allied to *longilabris*:

Cicindela ostenta n. sp.—Rather smaller and with relatively shorter and broader hind body than *longilabris*, bright green and rather notably shining above, the legs and anterior part of the under surface green, the abdomen and median part of the metasternum violet-blue, the last segment of the former green; elytral markings as in *longilabris*. Length (σ^7) 13.5 mm.; width 5.0 mm. California.

This is probably the form that has hitherto been referred to as a green *longilabris*, but there is strong reason to believe that it is a true species rather than a subspecies, for the labrum differs greatly. In the male of *longilabris* the apex of the labrum is sinuate, with a stout tooth projecting from the sinus, the latter defined laterally by obtuse but prominent teeth. In *ostenta* the labrum of the male is strongly and almost evenly rounded at apex, with a tooth projecting from the middle but without further modification.

Nebraskana is a subspecies of *montana*, similarly having shining elytra with the punctures well separated among themselves and a totally black labrum in the female, but the outline is more slender and the size rather smaller. My three examples of *montana* came from Lethbridge, Alberta, Canada, and have only a sculptural indication of the middle band. I formerly thought that they were *nebraskana*, but closer observation shows that this is not the case; they agree exactly with the original description of *montana*. The following is another subspecies:

Cicindela montana ssp. **canadensis** nov.—Smaller and much shorter than *montana*, less shining, deep black throughout above and beneath, the under surface strongly shining; labrum more oblique at the sides, the apex narrower, the sinus deeper, the median tooth stronger, projecting well beyond the dentiform sides of the sinus, the surface pale throughout

(♂) or pale becoming gradually black at the periphery (♀); elytra with the punctures not generally isolated as they are in *montana* but confluent, each elytron having merely a slender elbowed discal middle band pale; legs and tarsi similarly rather slender. Length (♂ ♀) 11.0–13.0 mm.; width 4.7–5.0 mm. Canada (Calgary, Alberta).

The following is certainly a distinct species of the *montana* subgroup:

***Cicindela spissitarsis* n. sp.**—Short, feebly convex, black, the bottoms of the elytral punctures obscure green; under surface purplish-black, the abdomen metallic green and violet; labrum (♀) as in *longilabris*, black throughout; head and prothorax with dense rugulation, which is longitudinal but not very regular on the front, the latter nearly flat, abruptly depressed at the inner margins of the eyes; prothorax transverse, deeply, transversely bisulcate; elytra rather less than one-half longer than wide, sculptured nearly as in *canadensis*, the punctures very dense and confusedly confluent, each elytron with only the inner end of the middle band pale; legs rather short, the tarsi stouter than in any other American species of the genus, the posterior equal in length to the tibiæ, pale piceo-testaceous in color, the third joint distinctly less than three times as long as wide. Length (♀) 11.0 mm.; width 4.7 mm. Canada (Aweme, Manitoba),—Norman Criddle.

The tarsal structure, sculpture and coloration in this species isolate it at once among its fellows. The following belongs to the *perviridis* section of the present group:

***Cicindela perviridis* ssp. *placensis* nov.**—Oblong, rather depressed, dull in lustre, the upper surface blue to obscure green, the entire under surface polished and pure blue to greenish-blue; labrum as in *perviridis*, similar in the sexes, pale throughout, the apex rather narrowly truncate, with a strong tooth projecting from the truncature; vertex concave, distinctly and subevenly strigilate; prothorax very short and strongly transverse, the sides converging and nearly straight from apex to base, the transverse sulci deeper blue; elytra as in *perviridis* in maculation and sculpture but shorter and more obtuse at apex, the punctures very shallow, granulose as usual, confluent and each with a shining elevation; sometimes the surface seems to be almost even, with only the shining elevations remaining; legs rather long, slender, the hind tarsi longer than the tibiæ. Length (♂ ♀) 12.0–12.8 mm.; width 4.7–5.3 mm. California (Placer Co.),—Koebele.

In my only male example of *perviridis* the outline is more elongate, the surface similarly very feebly convex, the color pure green but with dull lustre above and pure metallic green throughout beneath; the prothorax is distinctly less transverse, with the sulci not or scarcely at all deeper in color; the humeral lunule is complete, the middle band expanded at the margin, extending

inwardly to about the median line and the apical lunule is represented only by a large rounded, posteriorly attenuated marginal spot near the anterior limit of the apical obliquity and a very feeble remnant near the sutural angles.

6—In the *nigrocærulea* group the following Mexican species should be included:

**Cicindela townsendi* n. sp.—Rather stout and convex, alutaceous, completely immaculate, blackish-cupreous to brighter cupreous-red, the under surface dark blue and glabrous, not at all pubescent laterally; labrum pale, clouded with black along the apex, the latter broadly, strongly, arcuately produced and bearing a single rather strong tooth; head and prothorax glabrous, the latter slightly narrower than the head, a fourth to third wider than long and moderately obtapezoidal, finely sculptured, with the sulci rather shallow; elytra oblong-oval, with slightly arcuate sides, about two-thirds longer than wide, together evenly and obtusely rounded at apex with smooth marginal bead, the surface virtually impunctate, except the small but abrupt foveæ in the two depressions, but strongly sericeous in lustre and with barely discoverable vestiges of moderate punctures equally throughout the surface; hind tarsi longer than the tibiæ, slender. Length (♀) 11.5–12.0 mm.; width 4.2–4.6 mm. Mexico (Sierra Madre Mts., 7300', Chihuahua),—C. H. T. Townsend.

Evidently allied to *viatica* Chev. and *nigrilabris* Bates, but differs in having the labrum purely unidentate, there being no vestige of lateral teeth and in having the elytral sculpture uniform, though very feeble, and not closer apically. The labial palpi are piceous, except the last joint which is feebly claviform and with green metallic lustre.

7—It seems a correct course to announce the following member of the *scutellaris* group as a distinct species:

Cicindela criddlei n. sp.—Form very stout, the upper surface shining but with feeble to moderate alutaceous lustre, wholly brilliant red to obscure green feebly suffused with red, the elytral margins broadly and entirely white, the inner margin of the vitta broadly swollen medially and emarginate at the middle of the usual position of the apical lunule, sometimes with the margin interrupted just before the apical lunule and with the anterior part reduced in width and more withdrawn from the exterior edge; under surface shining metallic blue to green throughout; labrum strongly tridentate at the middle in both sexes; prothorax moderately transverse, nearly as wide as the head, with many long erect white hairs at the sides; elytra with the punctures feeble and obsolescent, rather distinct toward base. Length (♂ ♀) 12.0–12.5 mm.; width 5.0–5.4 mm. Canada (Aweme, Manitoba),—Norman Criddle.

The four homogeneous examples, kindly communicated by Mr. Criddle, represent a form allied to *lecontei* but very much stouter, the head similarly hairy in the male but with the erect hairs on the flanks of the prothorax longer, much more numerous and conspicuous, especially in the male; the outer margins of the elytra as a rule are broadly and continuously white throughout and not resolved into three widely separated sections as in *lecontei* and *modesta*.

9—The *fulgida* group, as here organized, contains but few discordant structural elements, and for the most part holds together very well in its chief distinguishing feature among the neighboring groups, that is the very short tarsi; these are longer in *fulgida* than in any other species of the group but not so very much longer, and *cochisensis*, though having the characteristically short tarsi, is conspicuously different in its immaculate elytra, there being no spot except the humeral which is occasionally evident. All collections contain a form of *latesignata* in which the broad elytral marking becomes in great part confluent, leaving only the suture, very broadly basally and abruptly expanded in a transverse spot near apical fourth, dark. This form has never been named but, as there are no intermediates and the taxonomic value of the form unknown, it seems best to give it a definite designation as follows:

***Cicindela latesignata* ssp. *obliviosa* nov.**—Similar to *latesignata* in form, color and sculpture, excepting that the pale markings of the elytra are broadly confluent. Length (σ^7 ♀) 12.5–13.0 mm.; width 4.8–5.2 mm. California (Seabeaches at San Diego, occurring apparently with the normal form of the species).

The constancy of this aberration is quite as inexplicable on the ground of mere variation, as is that of the pale form in some species of the *dorsalis* group. It is possibly a case of asexual dimorphism, but its real nature is not known. As a rule the outline of *obliviosa* is a little narrower than that of *latesignata* and in those rare examples displaying a slight separation of the markings, it will be observed that the humeral lunule is more oblique or less transverse posteriorly than in *latesignata*.

***Cicindela limbigera* ssp. *nympha* nov.**—Nearly similar to *limbigera* but larger and with larger head, the color darker æneous-brown and not blue or green as in that species; head and prothorax with similar plentiful bristling white pubescence; elytra similar in form and sculpture

but larger, only feebly convex, white, with a sutural dark vitta which is broad at base, becoming gradually narrower and extinct at apical fourth or fifth, the white field having on each a single feebly arcuate dark line near outer third behind the middle, oblique in direction but wholly without trace of other dark maculation; tarsi very short. Length (σ^7 ♀) 10.5–11.3 mm.; width 4.0–4.4 mm. Canada (Aweme, Manitoba),—Criddle.

Differs from *limbigera* in its larger size, aeneous-brown color—more greenish beneath—and in the constant absence of the dark sublateral spot before the middle, which is as constantly present in that species.

11—In the *purpurea* group there are many rather distinctly characterized species and subspecies not as yet recorded in the literature; some of these are as follows:

***Cicindela purpurea* ssp. *auguralis* nov.**—Larger and with more elongate hind body than in *purpurea*, obscure green with cupreous side margins to brownish-cupreous suffused with greenish; elytral markings, when complete, consisting of an entire humeral lunule, a middle band sometimes expanded at the margin and a complete apical lunule, but generally with the humeral and apical lunules divided broadly. Length (σ^7 ♀) 13.0–15.0 mm.; width 5.2–5.5 mm. Colorado.

The greener examples of this subspecies have been confused with *graminea* in most collections. *Graminea* is a much narrower and more elongate form, with less transverse prothorax, pure green above, with brighter green or blue metallic side margins; it is much more deficient in basal maculation, only one of my three examples having even so much as a single humeral spot. From *purpurea* it differs in its larger size, more elongate elytra and much more complete basal maculation of the elytra, though the coloration, in the prevalence of brownish-coppery shades, is similar.

***Cicindela purpurea* ssp. *ardelio* nov.**—Smaller and much narrower than *purpurea*, the elytra more elongate; color dark and obscure uniform green above, with simply slightly paler and more shining and narrower side margins, very dark blue beneath; elytral maculation complete, consisting of an entire humeral lunule, an apical lunule complete, except that the outer end is detached as a discal spot, and a middle band only very feebly oblique at its inner end and much expanded along the side margins. Length (σ^7) 12.5 mm.; width 4.7 mm.; New Mexico.

I would have considered this to be *graminea*, were it not for the still narrower form of the body and the fuller elytral maculation,

but especially the different structure of the hind legs. The hind tarsi in the type are very long, in fact almost one-half longer than the tibiæ, while in the male of *graminea* they are only a third or fourth longer than the tibiæ.

Cicindela purpurea ssp. *inducta* nov.—Body black throughout but with a feeble greenish tinge especially anteriorly, the under surface bright coppery, the metasternum and sides of the abdomen basally green, the remainder of the abdomen blue, the apices of the segments green; legs obscure coppery-green; elytra with the side margins only differing slightly from the disk and obscure coppery, the markings consisting of a humeral and post-humeral spot, a median band oblique internally and about attaining the outer edge, along which it is slightly expanded anteriorly, and a complete apical lunule which is bent at the middle to form a right angle. Length (♂) 11.5 mm.; width 5.0 mm. Colorado.

Much smaller than *auguralis* or *auduboni* and differing from the latter very greatly in maculation and from both in color throughout.

Limbalis Klug, is a species different from *purpurea*. The penultimate joint of the labial palpi frequently becomes pale in *limbalis*, though this may not be entirely constant within the same specific or subspecific form in this group, but I have never noted an instance of its becoming pale in *purpurea* or in any of its subspecies. The body is much narrower and more elongate than in the typical *purpurea* section. I think that *transversa* Leng, of which I have a single example from Indiana, is a member of the *limbalis* and not of the true *purpurea* section, and *splendida* is also a *limbalis*-like species. I do not seem to have either *spretæ* or *amæna* of LeConte and so cannot judge definitely concerning them, but from what is quoted by Mr. Leng they also would seem to be of the *limbalis* type. *Limbalis* is represented in my collection by a good series from Connecticut to Iowa; one male from Fort Gratiot, Mich., is shorter in the hind body than any other, but there seem to be but few other differences; the color above is coppery-red, the side margins metallic-blue, the thoracic sulci also blue; they all have a humeral and post-humeral pale spot, the elbowed middle band penetrating the blue margin and sometimes virtually attaining the elytral edge but never expanding along the latter, a transverse apical streak and a detached subapical external spot; no one of my examples has a complete humeral or apical lunule. The following is a very beautiful and much smaller development:

Cicindela limbalis ssp. *awemeana* nov.—Smaller than *limbalis* and with shorter hind body, the upper surface generally intense purplish-red, sometimes however without the purplish tinge but always brighter than in *limbalis*, the thoracic sulci and marginal streak and vitta behind the eyes blue as in *limbalis*, the elytral side margins purplish-blue to green; under surface dark blue to bluish-green; elytral maculation nearly as in *limbalis*, except that the apical lunule is frequently entire. Length (σ^7 ♀) 11.5–12.5 mm.; width 4.8–5.2 mm. Canada (Aweme, Manitoba), —Criddle.

The under surface and legs are more hairy than in *limbalis*.

Cicindela limbalis ssp. *eldorensis* nov.—Much narrower than the preceding, but otherwise nearly similar in coloration and sculpture, the sutural beading still more vividly green; under surface variegated with blue, coppery and green, the pubescence toward the sides and on the legs much less developed and resembling *limbalis* proper. Length (σ^7) 12.5 mm.; width 4.65 mm. Colorado (Eldora).

Distinguishable from *limbalis* by the smaller size and especially the more slender outline, and inhabiting a different faunal region. It is narrower than *awemeana* and less pubescent beneath and on the femora.

Lauta Csy., is the west coast representative of the true eastern *purpurea* and these both differ from any of the Rocky Mountain forms. Not one of my eight representatives of *lauta* has the faintest trace of any pale maculation at or near the humeri, which is also the case with the true *purpurea*, and the hind body in both is of much shorter, more subquadrate outline. The following is a very interesting subspecies of *lauta*, being the smallest member of the *purpurea* group:

Cicindela lauta ssp. *franciscana* nov.—Resembles *lauta* in its uniform vivid sericeous green color, the under surface intense shining blue; head larger, being wider than the prothorax, the latter much smaller, somewhat less transverse and more strongly obtapezoidal, the sulci, as well as the very broad lateral margins of the elytra, deep violet-blue, the markings similar, consisting of a very small transverse dash near the apical angles and a median band, but here the latter is not inwardly bent posteriorly but is transverse and confined to the median part of the disk; elytra shorter, together less than a third longer than wide. Length (σ^7) 10.5 mm.; width 4.4 mm. California (locality unrecorded).

The general coloration is a little more obscure than in *lauta* and the outline of the body and form of the median fascia very different.

The following is a distinct development of the *decemnotata* type:

Cicindela decemnotata ssp. *albertina* nov.—Larger and still more elongate than *decemnotata*, green, with feeble subcupreous reflections and rather shining, the under surface paler green; lateral margins broadly shining and brighter green; elytral maculation as in *decemnotata*, though relatively not quite so broad and with the apical lunule, which is broad and entire as a rule in that species, strongly divided, the outer part forming a rounded discal spot; middle band with the oblique posterior part similarly long, but with the outer part tending less to attain the lateral edges, the outer metallic border being more developed; all the pale spots and bands seem more widely isolated among themselves, owing to the larger size of the body and relatively narrower maculation. Length (σ^7 ♀) 11.8–13.0 mm.; width 4.75–5.0 mm. Canada (Lethbridge, Alberta). Communicated by Mr. Criddle.

I have seen only the type pair, which has been compared with three very good examples of the typical *decemnotata*.

12—In the *formosa* group there are three subgroups, represented by *formosa*, of very stout build and moderately elongate, very strongly tridentate labrum, *venusta*, having a much narrower body but still longer though not quite so strongly tridentate labrum, and *admiscens*, having a short transverse labrum as in the *tranquebarica* group, with a narrow body and markings as in *venusta*. The following is a very brilliant modification of *formosa*:

Cicindela formosa ssp. *luxuriosa* nov.—Form nearly as in *formosa* but not quite so stout, with strong opaque-sericeous lustre, bright coppery to purplish-red throughout above, the white elytral margins much narrower than in *formosa*, with the middle band much narrower, more transverse and less elbowed; legs and under surface bright blue; pubescence and sculpture throughout nearly similar. Length (σ^7) 15.0 mm.; width 5.7–5.9 mm. Colorado (near Denver),—Soltau.

Though evidently a modification of *formosa*, this very beautiful form merits special designation because of the very great recession of the characteristically broad markings of the *formosa* section.

Cicindela venusta ssp. *versuta* nov.—Nearly similar to *venusta* but larger and evidently somewhat stouter, the coloration more reddish and less opaque coppery, the pale markings even a little broader; under surface bright green, the sides of the prothorax and the sternal side-pieces bright cupreous; long white pubescence much more abundant, especially on the femora. Length (σ^7 ♀) 11.8–14.0 mm.; width 4.6–5.5 mm. Canada (Aweme, Manitoba),—Criddle.

In *venusta* the color is pale green throughout beneath; my series is from Kansas and Colorado.

Cicindela venusta ssp. *gracilentata* nov.—Similar to *venusta* and *versuta* but much more slender and smaller in size, the coloration and maculation above and beneath as in the latter; hairs on the front, femora and thoracic flanks coarser and whiter than in *venusta*; prothorax much narrower and less transverse, the head smaller. Length (σ^7) 11.7 mm.; width 4.2 mm. Montana.

The hind tarsi have the joints pale toward their bases in a way not noticeable in either of the other forms mentioned, and the porrect white spinules at their apices are relatively longer and more conspicuous.

The following species presents a singular combination of characters and is distinctly isolated:

Cicindela admiscens n. sp.—Form and ornamentation nearly as in *venusta*, the inner prolongation of the humeral lunule being more oblique as a rule, the ground color above more obscure cupreous-brown; pubescence throughout less abundant, the sculpture a little finer; labrum differing remarkably, being short and transverse as in the *tranquebarica* group, the three teeth moderate but distinct; prothorax relatively smaller, narrower than the head, similarly sulcate; elytra with very broad white marking, almost exactly as in *venusta* throughout; under surface colored as in *versuta*; legs slender. Length (σ^7 ♀) 13.0–15.0 mm.; width 4.9–5.5 mm. New Mexico (Jemez Springs).

A large series of this species was sent to me recently by Mr. Woodgate. I mistook it at first for *venusta*, but the radically different labrum, which is similar in the sexes, prevented any association with that species; in fact some doubt might arise as to whether it should not be considered an aberrant member of the next group, but in my opinion it is correctly assigned to the *formosa* group.

13—In the *tranquebarica* (*vulgaris*) group the species in general are of rather larger size than those of the *repanda* group, and, as before stated, segregate themselves into four widely distinct types. In the *tranquebarica* subgroup the various forms are closely allied among themselves, but include two subtypes, the first having the oblique inner part of the middle band short as in *tranquebarica*, *hori-conensis* and the two following, and the second having this oblique arm long as in *vibex* and *kirbyi*.

Cicindela tranquebarica ssp. *turbulenta* nov.—Similar in general to *tranquebarica* but rather larger and much stouter, not black or blackish but dull and deep red-brown, more shining and red at the outer elytral margins; three labral teeth very strong, not on a median projecting part

of the edge as is generally the case in that species; front coarsely, strongly pubescent; prothorax very large, wider than the head, nearly similar but more transverse; elytra broader but with similar markings; under surface similar but more pubescent at the sides. Length (♀) 16.0 mm. width 6.5 mm. Mississippi (Vicksburg).

Readily distinguishable by its large size, broad form and very large prothorax.

Cicindela crinifrons n. sp.—Smaller and more convex than *tranquebarica*, dull and still blacker in color above, the under surface as in that species; front densely hispido-pubescent, even more densely in the female, the hairs fine; prothorax, like the head, paler brown, a lateral streak and the sulci blue; elytra one-half (♂) to one-third (♀) longer than wide, the sculpture and ornamentation nearly similar, except that all the white markings are generally finer and that the humeral lunule is much less oblique posteriorly, ending at about the median line of each elytron at and not behind basal third; under surface more pubescent laterally. Length (♂ ♀) 11.0–13.0 mm.; width 4.7–5.7 mm. North Carolina (Asheville and Southern Pines).

This form differs so much from *tranquebarica* in size, convexity, in its blacker color, more abundant pubescence and in the direction and extent of the posterior part of the humeral lunule, that I prefer to give it a specific status.

On reading Dejean's description of *obliquata* very carefully, it becomes evident that *obliquata* Dej., is merely the species named *tranquebarica* by Herbst and *vulgaris* by Say. This was recognized also by LeConte, who gave the name *kirbyi* to the *obliquata* of Dejean as understood by Kirby. The species should therefore be:

Cicindela kirbyi Lec.—*Obliquata* Kirby nec. Dej. (Faun. Bor. Am., iv, 10)—Narrower, more elongate, more convex and paler coppery-brown than *tranquebarica* Hbst., and with the elytral markings much broader though otherwise as in that species, except that the oblique part of the middle band is more extended posteriorly. Colorado to Manitoba (Aweme).

The northern specimens are a little smaller than the southern as a rule, but do not differ otherwise, and there are two examples from Colorado before me, in which the elytra are broader and more inflated than in any others of a good series. There are a good many varieties near *vibex* and *kirbyi*, but my material is not sufficient to differentiate them.

14—The *12-guttata* section of the *repanda* group is composed of numerous more or less important elements, which have not as yet

been very thoroughly studied.* I find the various components to be separated by clear-cut lines as a rule, based upon general coloration, sculpture, outline or pubescence and, as represented by the material in my own collection alone, it is perfectly evident that there are many forms worthy of separate designation in this section of the group. Of the true *guttifera* stock there are three geographic subspecies, one inhabiting solely the coast region of California to the northward of San Francisco, another, *maricopa*, occurring so far only in Arizona, and the third—the typical *guttifera*—generally paler than the others and occurring abundantly in New Mexico and Colorado and probably still further to the northward on the eastern slope of the Rockies. *Oregona* is widely distinct in its system of sculpture. The Mexican *fera* Chev., with partially red abdomen is also a member of this *repanda* group. The taxonomic units and subunits in this group are so numerous that it seems best to give a brief tabular statement of their chief differential characters, so far as represented by material at hand; this is as follows:

- Elytral markings complete, the humeral and apical lunules not divided, the middle band expanded along the side margins; elytra (♀) more or less abruptly expanded at the sides before the middle; frontal convexity pubescent in both sexes. 2
- Elytral markings incomplete, the humeral and apical lunules broadly divided or obsolete, the elytra (♀) not or but very faintly expanded before the middle. 4
- 2—Elytral punctures small, the surface sometimes appearing to be almost impunctate but with the polished granules always conspicuous though small; color blackish-brown, the white side margin well separated from the humeral lunule; entire under surface blue. Length (♂ ♀) 12.0–12.5 mm.; width 4.7–5.0 mm. New York.
- ancocisconensis** Harris
- Elytral punctures comparatively coarse, relatively closer, the granules shining and more or less coarse; body beneath blue, with the sides of the sterna cupreous. 3
- 3—Color brown-black, the anterior parts more cupreous as usual; white side margin widely separated from the humeral lunule as in the preceding, the hind body more elongate than in *repanda*,

*The comments of Mr. Fall relating to this group (Ent. News, 1901, p. 307) are enlightening, but do not extend deeply enough into the subject, else the difference in type of sculpture—not *degree* of sculpture but *type* of sculpture—between the *guttifera* and *oregona* sections of the group could not possibly have been overlooked by him. These differences were seen and appreciated by LeConte but have ever since remained persistently in oblivion.

- the size materially larger, the prothorax larger and more transverse. Length (σ^7 ♀) 11.5–12.5 mm.; width 4.8–5.3 mm. Canada (Aweme, Manitoba),—Criddle. **bucolica** n. sp.
- Color paler but rather dark brown, the white sides of the elytra prolonged anteriorly almost or quite to the humeral lunule; prothorax smaller, only very slightly transverse and not quite as wide as the head in either sex, not at all as in the preceding, where it is fully as wide as the head to evidently wider. Length (σ^7 ♀) 10.5–12.5 mm.; width 4.0–5.2 mm. Long Island to Colorado and Manitoba. A form represented by three examples from Southern Pines, North Carolina, is exactly similar, except that the posterior oblique part of the middle band is shorter; it is only a very feeble race but may be called *baltimeorensis* Lec. **repanda** Dej.
- Color still paler and more brownish-bronze, the body very much smaller but especially more slender, the markings of the elytra broader, the side margins broadly united with the humeral lunule. Length (σ^7) 9.7 mm.; width 3.6–3.8 mm. Texas (El Paso). . . **unijuncta** Csy.
- 4—Frontal convexity punctured, rugulose and pubescent throughout its extent in both sexes as in *repanda*; body above very obscure blackish-cupreous, the maculation consisting of a broadly divided humeral and apical lunule and an elbowed middle band, which is very briefly expanded along the margin in most cases; elytral punctures distinct, each attended by a polished granule, with numerous smaller granulae interspersed; under surface blue, the pleura coppery. Length (♀) 12.0–12.5 mm.; width 5.3 mm. North Carolina and Iowa (Keokuk). **duodecimguttata** Dej.
- Frontal convexity wholly different from any in the preceding species, hairless, except a small cluster of erect hairs at each side near the eye in both sexes; middle band of the elytra never dilated at the sides. 5
- 5—Elytra clearly punctured, the punctures metallic but becoming very fine and sparse toward the suture, everywhere devoid of any trace of elevated shining granules. Color coppery-brown, more metallic coppery toward the sides, colored beneath as in *repanda*; labrum as usual with a sharp median tooth at the middle of a short truncate extension; vertex concave; prothorax transverse but not so wide as the head, the sulci deep blue; elytra nearly as in *oregona* but narrower, rather convex. Length (♀) 13.0 mm.; width 5.0 mm. Kansas. **sterope** n. sp.
- Elytra clearly punctate, each puncture with a sharply elevated polished granule. 6
- Elytra not punctured, except near the sides and apex, but densely microgranulato-reticulate and with many small but sharply elevated shining granules, indicating the position of punctures which have become vestigial and diffused and never metallic, the general surface of the elytra very opaque. 8
- 6—Elytral humeri more sharply angulate, nearly rectangular, the punctures strong; upper surface pure green, less opaque than in any other species of the group, the under surface entirely of a paler and more shining green; elytra without humeral spot, the post-humeral only

sometimes traceable as a feeble vestige; apical spot vestigial; apical margin of the labrum black in both sexes, broadly shaded with piceous medially on the disk (♀). Length (♂ ♀) 12.0-14.0 mm.; width 4.8-5.6 mm. California (Placer Co.) **depressula** Csy.

A—Similar but larger, broader and still flatter, darker and more obscure green, the prothorax larger, wider than the head; humeral and post-humeral spots both well developed, the apical spot also large; punctures closer; under surface wholly deep violet-blue. Length (♂) 13.8 mm.; width 5.4 mm. California (locality unrecorded) **scapularis** Csy.

Elytral humeri obtuse as usual in *repanda* and *12-guttata* 7

7—Under surface wholly polished green and blue; surface rather depressed, the elytra more inflated in the female; color above blackish-brown, never green, the maculation rather fine but variable as usual; all the spots distinct; elytral granules small; labrum with a fine entire black apical margin in both sexes, the female with a small quadrate black anterior spot at the middle; prothorax rather large and transverse, as wide as the head. Length (♂ ♀) 10.5-13.0 mm.; width 4.4-5.5 mm. Sierras—from middle California and adjacent parts of Nevada to Washington State **oregona** Lec.

Under surface shining metallic green or greenish-blue, the sides of the sterna coppery; form stouter, the size larger, opaque, olive green to coppery-brown above, the elytral markings generally larger than in the preceding; labrum wholly pale in both sexes, with only an extremely fine apical margin black and without trace of a black medial spot in the female; polished granules of the elytra larger, denser and more conspicuous than in any other species. Length (♂ ♀) 11.8-13.5 mm.; width 4.8-5.4 mm. Colorado . . . **audax** n. sp.

8—Median band of the elytra having the usual form in the group, moderately flexed posteriorly from the marked elbow on the medial line . . . 9

Median band very slender throughout, not broader at the transverse part or posterior extremity as it is in all the preceding forms, arcuately bent near the median line, the oblique posterior part longer than in any other species of the group 10

9—Elytra barely one-half longer than wide, together gradually and broadly rounded behind in about apical third, the edge broadly rounded externally. Color pale coppery-bronze to obscure æneous, sometimes obscure greenish, always brighter and more coppery toward the sides, the pale markings rather full, all the spots well developed; labrum with a very fine black apical margin; prothorax moderate, the sulci brighter coppery to blue; under surface bright green to bluish-green, the sides of the sterna cupreous. Length (♂ ♀) 11.0-12.5 mm.; width 4.5-5.4 mm. New Mexico and Colorado **guttifera** Lec.

A—Similar to the preceding in size, sculpture and outline but brownish-black, the elytra never more than feebly coppery at the sides; under surface wholly shining metallic green or blue, the sterna never coppery. Length (♂ ♀) 11.0-12.8 mm.; width 4.4-5.2 mm. California (maritime regions north of San Francisco).

sonoma n. subsp.

- B—Similar to *12-guttata* in form, size and sculpture but with the upper surface wholly bright green anteriorly, the elytra dark violet, shaded gradually paler and lustrous violet-red at the sides, the under surface wholly blue and purplish-blue; labrum (♀) with an anterior medial black spot. Length (♂ ♀) 11.5–12.0 mm.; width 4.8–5.0 mm. Arizona (Prescott).....**maricopa** Leng
- Elytra still shorter and of different shape, subquadrate, scarcely two-fifths longer than wide, abruptly rounding at the sides externally near apical fifth or sixth and thence very obliquely and obtusely rounded through the apex; upper surface very dark and obscure coppery-brown, the anterior parts barely at all paler or more metallic, the labrum with a fine even black anterior edge; cluster of hairs near each eye about two to four in number; elytra with all the spots distinct, barely at all coppery near the external edges, the surface very even, the polished granules standing out very conspicuously though not large; under surface shining metallic green and blue. Length (♂) 10.7 mm.; width 4.6 mm. Nevada (Hawthorne),—Wickham.....**quadripennis** n. sp.
- Elytra longer and more evenly oval than in any other species, elliptically rounding behind from near the middle of the length, without trace of any strong external apical rounding, two-thirds longer than wide, more convex than usual, the elytral markings all distinct and full; color above very obscure and blackish coppery-bronze, feebly cupreous at the sides; prothorax large, almost parallel; under surface metallic green and blue throughout. Length (♀) 13.0 mm.; width 5.5 mm. Nevada (Hawthorne),—Wickham **ovalipennis** n. sp.
- 10—Body larger than in any other species of the group, blackish-brown, the elytra feebly cuprescent at the sides; labrum (♀) with the apical edge black and the median discal region throughout the length brown; hairs near the eyes almost obsolete, perhaps more evident in the male; prothorax about as wide as the head, large, transverse, almost parallel; elytra ample, gradually subinflated in the female, the four spots on each distinct; punctuation of the elytra not quite so effaced as in the *12-guttata* section, feeble confluent indentations being rather evident, the granules mingled with numerous smaller shining specks; under surface metallic green to bluish. Length (♀) 13.5 mm.; width 5.8 mm. California (Humboldt Co.)....**eureka** Fall

Proteus Kirby is unknown to me, and I will not therefore attempt to give it a definite place in the series. It is singular that two forms so markedly different in appearance as *quadripennis* and *ovalipennis* should have both been taken by the same collector and at the same locality, but, though represented in my collection by different sexes, they certainly can not be placed together; they are probably local developments but remarkably unlike any other species of the group. The coloration of the under surface seems to be an important specific character; for example, in every one of a considerable series of

oregona in my collection the under surface is as described above, without trace of coppery sternal side-pieces, while in every example of a still larger series of *guttifera* these side-pieces are cupreous; there is no exception in either case. Dejean mentions the latter form of coloration in his description of *12-guttata*, which occurs only in the Atlantic regions, and this is confirmed by my material. *Oregona* has been very generally misunderstood; it is a mountain species, confined to the Sierra regions; Colorado and Kansas examples are specifically different and the New Mexican *guttifera* is so different in its scheme of sculpture that its confusion with *oregona* is unaccountable.

15—The species of the *hirticollis* group resemble the preceding closely and should perhaps be considered more properly as an extension of it, but the humeral lunule assumes a very different form, which serves constantly to differentiate the two groups. The species are three in number as before enumerated:

***Cicindela gravida* ssp. *abrupta* nov.**—Form nearly as in *gravida* but a little narrower, darker and more blackish-brown in color, the markings similar, except that the humeral lunule is broadly interrupted, the posterior detached part with an anterior projection which is more pronounced than in *gravida*, the middle band also sometimes detached from the white marginal streak; pubescence of the front coarser, whiter and less abundant. Length (♂ ♀) 11.5–13.0 mm.; width 4.7–5.35 mm. California (Sacramento).

Differs from *gravida* principally in the much more acute elytral apices, especially in the female, the sides posteriorly being more oblique behind the dilation near basal third, which is even stronger and more abrupt than in *gravida*.

19—The *dorsalis* group occurs exclusively on or immediately behind sea-beaches from New England far into the tropics and consists of numerous species, which are strikingly similar among themselves. The following new forms seem worthy of description:

***Cicindela munifica* n. sp.**—Form, sculpture and ornamentation as in *dorsalis* but much larger, the head and prothorax notably larger, the latter more transverse and with the sides at base more swollen; labrum larger, relatively less abbreviated; vertex rather more deeply concave; elytra (♀) more strongly angulate and deplanate at the sides near basal third; under surface similar, except that the last ventral (♀) is more broadly truncate; legs a little less slender. Length (♀) 15.0–16.0 mm.; width 6.4–6.6 mm. Rhode Island.

On actually comparing it with *dorsalis* this species seems much more distinct than might be inferred from the description, the very large prothorax, somewhat wider than the head and the more strongly angulated elytra near basal third, together with the greater convergence of the sides from the angulation to the tip, the latter being relatively less obtuse, impart an evident difference in habitus.

Cicindela apricoidea n. sp.—A little larger and stouter than *saulcyi*, obscure æneous, the under surface æneous with green reflections; head large, shining, the labrum well developed, the anterior edge almost even, with the tooth long and very acute; prothorax rather narrower than the head, feebly alutaceous, the sides at base distinctly swollen, the white pubescence as usual; elytra (♀) only very feebly swollen at the sides near basal third and broadly rounded, thence feebly narrowing to near apical third, the sides then rapidly converging to the rounded and finely serrulate apices. Length (♀) 10.5–11.0 mm.; width 4.2 mm. Seabeaches of Louisiana and Mississippi. Four very homogeneous examples.

The examples at hand all have the elytra white, the suture narrowly dark, more broadly so basally and slightly green in the intra-humeral impression; the punctures are fine but rather close-set. *Apricoidea* is larger and stouter than *saulcyi* and has a very much larger head; it is correspondingly smaller than *media* of the southern Atlantic coast and relatively much more abbreviated, with less pubescent medial parts of the pronotum, very much more swollen sides of the thoracic base and more obtuse lateral prominence of the sides of the elytra in the female; indeed there is scarcely any prominence at all. This species however almost exactly resembles *castissima* Bates, as figured, but the prothorax is relatively smaller and more trapezoidal, the elytra more parallel at the sides, less narrowed behind, the apices rounded and not quasi-truncate and, finally and most decisively of all, the labrum has a strong and acute medial tooth as usual; it is said to be edentate (!) in *castissima*, the type of which is also a female.

Of *dorsalis* there is a form well known and generally found in company with it, that has lost nearly all the dark lines of the elytra, the latter being white, excepting the suture expanded slightly at the middle and a feeble intra-humeral streak. This is simply an albino form of *dorsalis* in all probability, as examples occur which are intermediate in marking.

Semipicta Csy. is a species readily distinguishable from *dorsalis* by its more elongate and subparallel form, much less abbreviated

labrum, retracted sides of the thoracic base and fine lineiform dark elytral markings, the posterior of the longitudinal lines but feebly arcuate and not tending at all to approach the suture at its posterior end; the sculpture of the pronotum also is sensibly different, being a very fine irregular vermiculiform rugulation in the type, though this possibly may not be constant.

21—A number of undescribed forms in the *circumpicta* group have been in my cabinet for many years; those most easily identifiable are as follows:

***Cicindela circumpicta* ssp. *ambiens* nov.**—Similar to *circumpicta* but dark indigo-blue in color, the head and prothorax paler and more lustrous blue, the latter greenish, the under surface very deep blue and partially black; head, labrum and antennæ similar; prothorax similar but as long as wide; elytra much shorter and relatively broader, three-fifths longer than wide, similarly sculptured and ornamented but duller in lustre, with the punctures smaller and rather less close-set, becoming very fine and more obsolescent apically than in *circumpicta*; pubescence of the under surface similar. Length (σ^7) 12.5 mm.; width 4.9 mm. Kansas.

The much shorter hind body, coloration and dull surface will enable one to recognize this subspecies very readily.

***Cicindela circumpicta* ssp. *inspiciens* nov.**—Similar to *circumpicta* but blackish, with æneous lustre, more shining; labrum similarly very short but with the median part, bearing the three strong teeth, more advanced; head very shining, with coarser and less numerous plications, which are almost obsolete toward the eyes, the vertex deeply concave, the eyes similarly very prominent; prothorax similar but less rounded at the sides and with the polished surface devoid of any kind of sculpture, except between the sulci and the apical and basal margins; elytra similar in their elongate parallel form and ornamentation, but with the surface more shining and the punctures everywhere sparse, particularly toward base, where they become closer in *circumpicta*; white pubescence at the sides of the under surface still closer, extremely dense. Length (σ^7) 13.0 mm.; width 4.65 mm. Texas (Point Isabel).

Distinct in the very shining surface, blackish-æneous color and sparse punctures. The female seems to be much less abundant than the male in this part of the *circumpicta* group; it has the elytral apices rounded as in the *togata* group.

In regard to forms of the *pratextata* type, Prof. Wickham some years ago obtained a series in southwestern Utah—a zoological region also extending for a long distance to the southward—the

individuals of which are very similar to those of another series, already in my collection from western Texas, except that the median fascia is much more oblique, unenlarged and rounded at tip. In the Texas form this fascia is much less oblique and its tip is expanded, with the apex rectilinearly truncate in a direction exactly parallel with the suture. These I had labeled *prætextata*, and they are apparently the typical *prætextata* of collections generally. In regard to this, the following paragraph concluding the original description of *prætextata* Lec., (Proc. Ac. Phila., 1854, p. 220) is particularly illuminating:

“Two males found on the ‘San Diego trip’ differ from the type by the more brilliant coppery color of the upper surface, the more distinct punctures of the elytra, and by the middle band of the elytra being gradually dilated internally and truncate, while in the type it is rounded at tip and not dilated.”

For this reason it must be held obvious that the Utah examples cited are the typical *prætextata* and the following are two subspecies:

***Cicindela prætextata* ssp. *fulgoris* nov.**—Similar to *prætextata* but relatively more elongate, with the coloration usually more brightly cupreous-red, the pubescence at the sides and apices of the prothorax more abundant, the elytra fully a fifth longer and with the middle band much less oblique, not approaching so closely to the anterior expansion of the apical lunule, and with its apex not unexpanded and obtuse but more or less dilated and rectilinearly truncate in a direction perfectly parallel with the suture; elytra (♀) rather less obtuse behind and with the individual apices less broadly rounded. Length (♂ ♀) 11.5–12.5 mm.; width 3.8–4.6 mm. Texas (El Paso and also with unrecorded locality).

My series of the typical *prætextata* consists of five individuals, all females, having the dimensions 10.5–12.5 mm. by 4.0–4.8 mm.

***Cicindela prætextata* ssp. *stringens* nov.**—Similar to *fulgoris* but a little stouter and with more greenish-cupreous lustre, the maculation similar, except that the marginal stripe near the base is deeply sinuate within; elytra distinctly shorter, only about two-thirds to three-fourths longer than wide; apices of the elytra (♀) similar but more broadly rounded. Length (♀) 13.0 mm.; width 4.6 mm. Texas (El Paso),—Dunn.

In *fulgoris* it will be noted that the basal part of the wide lateral white margin, corresponding to the basal lunule, is virtually parallel-sided, while here it is deeply sinuate within very near the base; in the true *prætextata* this part is also sinuate internally but less so

than in *stringens*; although apparently a trivial character, this is very constant throughout a good series of *fulgoris* and five examples of *prætextata*.

22—The *togata* group is closely allied to the preceding and has a generally similar style of ornamentation, but the head is densely pubescent, almost as in the *gratiosa* group, to which it is also allied. The following is specifically different from *togata*:

Cicindela globicollis n. sp.—Coloration, sculpture, vestiture and ornamentation almost exactly as in *togata*, but much smaller in size and of shorter form; labrum moderately and broadly produced medially, with a feeble medial sinuation, from the bottom of which projects an acute tooth, the sinus narrower and stronger and the tooth a little longer in the female; head noticeably smaller; prothorax less cylindrical and with still much more arcuate sides, giving a subglobular appearance; elytra (♂) with the sides gradually rounding and oblique to the acute and spinulose tips, or (♀) more broadly, obtusely rounding to the tips, which are rounded to the only very slightly retracted but similarly spinulose angles. Length (♂ ♀) 9.8–10.6 mm.; width 3.6–4.2 mm. Kansas (Clark Co.),—F. H. Snow. Three examples.

Differs specifically from *togata* in the form of the elytral apices of the female, the tips there being more rounded and the spine representing the sutural angle very greatly retracted and projecting from the edge of the suture; the male apices do not differ appreciably from those of *togata*. This form seems to resemble *apicalis* W. Horn, and may possibly prove to be a variety of that species, but it is much smaller in size and apparently has a more globular prothorax; in the absence of examples of *apicalis*, I am unable at present to supplement these with other indicated differences. The differences between the *apicalis*—*globicollis* section of this group and *togata* are exactly parallel to those between *hamata* and *marginata* of the *marginata* group; since the latter two are maintained as distinct species, apparently with justice, although they have identical markings, I think analogy should determine *apicalis*, with its analogue or possible variety *globicollis*, to be specifically different from *togata*.

23—The following is a very striking and beautiful variation of *lepida*:

Cicindela lepida ssp. *insomnis* nov.—Nearly as in *lepida* but with a larger head, more prominent eyes and somewhat narrower and more

elongate, though similarly ornamented, elytra, except that the posteriorly oblique part of the middle band is shorter; color differing, the head and prothorax being of a pure and brilliant green and with the pubescence less dense than in *lepida*, the hairs being largely wanting toward the eyes and on certain median parts of the pronotum. Length (σ^7) 10.0 mm.; width 3.8 mm. Kansas (Seward Co.).

The very pale hairy legs, though of radically different type of hairiness from that of *Dromochorus*, and the pale antennæ and pallid elytral suture, are remarkable characters in the *lepida* group, isolating it from every other American stem form.

25—In the *marginata* group there are two well marked sections, one composed of those species having a median basal pallid spot on each elytron, such as *blanda*, *hamata*, *marginata*, *cuprascens*, *macra*, *puritana* and *wapleri*, and the other, similar in every other way but without trace of this median basal spot, such as *sperata*, *inquisitor*, *marulha*, *knausi* and probably *nevadica*, which I do not know in nature. It seems rather surprising that some recent authors should have failed to appreciate the differences between *cuprascens* and *macra*, as there is no very great mutual resemblance. *Cuprascens* is one of the most beautiful species of the genus, the very bright cupreous-red, coarsely and subconfluently punctured elytra having the ivory-white markings common to this group, but all embossed to a conspicuous degree. In *macra* the elytra are much more elongate, more finely punctate, cupreous-brown to dull greenish in color and with the markings embossed only toward base and very slightly even there; I have a large series from Indiana to Kansas. The following three forms belong to the first section of the group as above defined:

***Cicindela macra* ssp. *mercurialis* nov.**—Similar in form and ornamentation to *macra* but rather less pubescent and with the prothorax longer and more cylindrical, with very nearly straight sides, longer than wide and blackish, with feeble æneous lustre, the elytra obscure green, twice as long as wide, the sides straight and parallel to apical fifth, thence rather abruptly oblique to the acute and minutely spinose angles; punctures as close-set as in *macra* but very much coarser and transversely submuricate, not so coarse, rounded or close-set as in *cuprascens*; tibiæ and tarsal joints testaceous, all blackish toward their apices. Length (σ^7) 12.0 mm.; width 3.5 mm. Iowa.

Differs from *macra* in the longer and more rectilateral prothorax and very markedly in the type of elytral sculpture.

Cicindela cuprascens ssp. *annicola* nov.—Similar to *cuprascens* in general form, but still a little more abbreviated, the elytral markings similar but narrower and less embossed, the punctures strong and close-set but not quite so coarse; color blackish, with feeble æneous lustre, the elytra paler and more cupreous-brown to greenish; elytra with the sides parallel but less rectilinear than in the preceding, in the female abruptly, strongly and rectangularly dentate at just behind apical fifth, the combined elytra thence arcuately narrowing to the rounded apex, the apices not produced. Length (♂ ♀) 10.0–11.7 mm.; width 3.4–4.0 mm. Kentucky, Illinois and Missouri.

Distinct from *cuprascens* in its slightly more abbreviated form, in sculpture and ornamentation.

Cicindela mundula n. sp.—Form nearly as in *cuprascens* and with similar though narrower and scarcely at all embossed markings; head and prothorax bright cupreo-æneous, with the hairs shorter and less numerous, the elytra coppery-brown, less closely or coarsely punctate, the subsutural line of foveæ distinct; labrum short, transverse, with a single small acute tooth; prothorax (♀) parallel, with rather arcuate sides, nearly a fourth wider than long, the sulci rather feeble; elytra (♀) as in *annicola* but slightly more elongate, the very abrupt sharp angulation more posterior and at about apical sixth, the combined elytra thence much more narrowed and lobiform, each apex more strongly rounded and somewhat produced, with fine but strong serrulation. Length (♀) 12.0 mm.; width 4.0 mm. Mississippi (Vicksburg).

The outline of the elytral apices induces me to treat this as a rather important taxonomic form, though with a value that it is difficult to define accurately with our present knowledge of the group.

26—It is quite certain that *chihuahuæ* Bates—now known in our collections as *micans* Fabr.—is specifically different from *punctulata*; it is larger, more elongate, more coarsely sculptured and differs constantly and very markedly in color; but in this case *boulderensis* would also have to have the specific status, as it differs from both in the obsolescent foveæ of the subsutural line and in having the punctures very fine suturally though strong laterally; it agrees with *punctulata* in color but differs in its narrower and more elongate form.

29—The specimens in my collection serving to represent *abdominalis* do not fulfill the descriptions very well, being much smaller and very deficient in white elytral spots, there being only an apical lunule and a small discal spot representing the anterior end of the middle band, and this is only to be seen in two out of the five

examples; they are from Florida and Louisiana and are probably subspecifically different from the New Jersey form. The following is another rather remarkable subspecies:

***Cicindela abdominalis* ssp. *faceta* nov.**—Similar in size and general form to *abdominalis*, not black but with a strong and sublutaceous violet lustre, wanting on the black anterior parts; hairs forming the lateral pronotal vittæ short and rather inconspicuous; elytra with rather fine but distinct, sparse, subæneous punctures, the green foveæ large and conspicuous; white spots on each elytron numerous, one representing the posterior end of the humeral lunule, two the anterior and posterior ends of the middle band, one elongate marginal near apical third, one smaller discal on the median line at apical fifth and a complete and full apical lunule; legs pallescent. Length (♀) 9.7 mm.; width 3.4 mm. A single example without indication of locality.

The coloration and maculation are different from any noted in descriptions.

***Cicindela extenuata* n. sp.**—Slender, with the usual narrow prothorax, broad head and prominent eyes, highly polished, black throughout, the abdomen red, the femora pallescent; labrum broadly produced, sinuate-truncate and edentate medially at tip; prothorax longer than wide, slightly narrowed toward base, the sulci narrow and shallow, the transverse decumbent hairs composing the lateral pronotal vittæ very coarse, white, close and conspicuous; elytra gradually expanding with nearly straight sides to apical fourth, then broadly and obtusely rounding through the combined apex, the serrulation excessively minute; surface with relatively coarse, close-set punctures, becoming rather sparse suturally, the foveæ large and deep but not at all metallic, the sole maculation consisting of a full apical lunule, an elongate marginal spot at apical third and a minute embossed discal spot representing the posterior end of the middle band; white pubescence along the sides of the under surface dense and very conspicuous. Length (♂ ♀) 7.5–8.5 mm.; width 2.5–3.0 mm. Florida (Crescent City),—Schwarz.

Allied without doubt to *scabrosa* Schaupp, but very much smaller, the length of that species being given by both Schaupp and Leng as 10.5 mm. The vittæ of transversely placed white hairs at the sides of the pronotum are so conspicuous that they would undoubtedly have been alluded to by Schaupp if so distinct in *scabrosa*; these hairs are short, finer, very sparse and inconspicuous in my southern examples of *abdominalis*, and, if the deep foveæ of the subsutural line were deep black and without trace of the metallic color seen in *abdominalis*, I think this also would have been observed.

30—Under the name *politula* Lec., I have had two forms, which

differ very much in general outline of the body, as well as in the form and extent of the apical white marking. The true *politula* has the elytra nearly or quite twice as long as wide in the female, parallel, with the sides feebly arcuate to the apical rounding beginning at about apical fifth, and the only white maculation is a slender marginal dash occupying the median part of the apical arcuation on each elytron and widely separated from the sutural angles.

Cicindela politula ssp. *cribrum* nov.—Color, sculpture and shining elytra as in *politula*, the head and prothorax with less metallic blue at the sides and in the sulci; head a little smaller, the lines forming the inner margins of the eyes more convergent; labrum similar, the apex truncate medially, with a single very minute blackish denticle; elytra glossy, deep black, the lateral margin very finely bluish, one-half longer than wide, the sides very feebly arcuate, rather strongly diverging from the base to about apical fourth, there gradually and broadly rounding semicircularly about the apex, the sutural angles minutely spiniform, the serrulation extremely minute; surface with evenly distributed strong punctures, finer apically; white maculation consisting of a full long apical lunule, from the angles to apical fifth but not much swollen at its extremities. Length (♀) 11.8 mm.; width 4.2 mm. Texas.

A very distinctly marked form allied to *politula* and probably of higher value than the subspecies.

31—The *rufiventris* group comprises three distinct sections or subgroups, represented first by *rufiventris* and *cumatilis*, secondly by *hentzi* and *16-punctata* and thirdly by *hæmorrhagica* and *arizonæ*. I have in my collection an undescribed form in each of these subgroups as follows:

Cicindela rufiventris ssp. *collusor* nov.—Form shorter than in *rufiventris*, the coloration similar, except that the elytra are a little more shining, subcupreous, and, toward the lateral edges, are more convexly declivous, with a broader purple stripe along the beading; labrum with the median produced lobe much broader, the single tooth longer, spinuliform; head and prothorax similar but less opaque; elytra similar in form but a little shorter and relatively broader, differing greatly in sculpture, the punctures being much coarser and very close-set, the pale markings on each consisting of a small point representing the posterior end of the humeral lunule, an elongate spot near the edge at posterior third, a very small discal point on the median line near apical fifth and a well developed apical lunule which is inflated near the suture. Length (♀) 11.5 mm.; width 4.5 mm. A single example without indication of locality from the Levette collection.

This form also is probably of greater value than the subspecies, but is placed in that category for the present.

Cicindela sedecimpunctata ssp. *sonorana* nov.—Similar to *16-punctata* but paler and more cupreous-brown, sometimes with a darker cloud on each elytron which never extends to base, apex or sides but within which the metallic punctures are much reduced or obsolescent, the maculation differing in having the two obliquely placed medial spots connected by a fine oblique line and the apical lunule entire. Length (σ^7 ♀) 8.2–11.8 mm.; width 2.6–4.0 mm. Arizona, New Mexico and southward to Durango. Very abundant.

This is probably a mere subspecies of *16-punctata*, but the binding of the two pairs of spots—medial and apical—is constant here; they are isolated in that species and the color is bluish-black. The female, as in the *hæmorrhagica* section, is much larger than the male; in the present form the female is much less abundant than the male, which is not the case in *hæmorrhagica* or allied species, where the female seems to be somewhat more abundant than the male.

Cicindela woodgatei n. sp.—Form, coloration and sculpture nearly as in *hæmorrhagica*, but very much smaller, with relatively larger head and prothorax and shorter elytra; labrum short, transverse, the single tooth minute, the median parts less advanced and the tooth less evident than in that species; head and prothorax similar in general form, color and relationship, but with the transverse sulci more sharply impressed; elytra similar in maculation, except that the inner oblique part of the median band is very much less extended posteriorly. Length (σ^7) 9.0–10.8, (♀) 11.0–12.0 mm.; width (σ^7) 3.2–3.7, (♀) 3.9–4.6 mm. New Mexico (Jemez Springs),—John Woodgate. Abundant.

This would seem at first to be a small variety of *hæmorrhagica*, but there is so much difference in the proportional extent of the anterior parts and hind body and in the form of the middle band, that I can see no other just disposition of it than as a distinct species; the longitudinal extent of the middle band is only about half that of *hæmorrhagica*.

If there were any definite meaning to be attached to the term "aberration," it would apparently apply better to the form described under the name *pacifica* by Schaupp, than any other that can be recalled at present, that variety being simply *hæmorrhagica* in which the white maculation of the elytra has failed to develop; but the positions normally occupied by these markings are plainly evident by reason of differences in the sculpture, and they are the same and are of the same extent as in the normally marked individuals.

CARABIDÆ.

Omophron Latr.

The species of this genus are evidently more abundant and diversified in North America than in the palæarctic fauna and new forms are continually being brought to light; the following is allied to *americanum* but is obviously different:

Omophron fontinale n. sp.—Coloration throughout almost exactly as in *americanum*; body more broadly oval and less elongate; head nearly similar; prothorax a little shorter and more transverse, the sides more converging from base to apex and more arcuate, the punctures similarly aggregated toward apex and base but smaller and less close; elytra with the striæ fine but strong, the punctures fine, moderately close-set, becoming widely separated in the lateral striæ; intervals nearly flat, becoming moderately convex toward the sides; basal joint of the hind tarsi much longer than the next two combined. Length 5.5–5.7 mm.; width 3.4–3.6 mm. New Mexico (Jemez Springs),—Woodgate.

The shorter, more oval outline of the body and the very much finer elytral striæ and punctures, with flatter intervals, cause this species to present a very different facies from *americanum*, in spite of the general similarity in coloration.

Omophron iridescens n. sp.—Similar in coloration to *americanum* but rather narrower, more oval and with a slightly smaller head, on which the pale chevron is broader and with the converging sides straight and not arcuate, as they are in that species, the punctures smaller and sparser; prothorax similar but with the punctures toward apex and base less coarse and not so numerous; elytra with similarly deeply impressed but more approximate and relatively still more coarsely punctate striæ; tarsi very slender, the basal joint of the posterior in the male unusually short, not longer than the next two combined. Length (♂) 5.4 mm.; width 3.0 mm. Mississippi (Vicksburg).

The black areas have more of a greenish metallic lustre than in *americanum* and the deep elytral striæ are still more approximate; by anteriorly oblique light the elytral surface becomes slightly iridescent. In *americanum* the basal joint of the hind tarsi is very much longer than the next two combined.

Omophron frater n. sp.—Oblong-oval in form, convex, shining, pale yellowish, the dark spots slightly exceeding the pale in area on the elytra and metallic green; head finely, sparsely punctate, with a narrow pale chevron behind the clypeus; prothorax rather more than twice as wide as long, finely, not densely punctate, largely impunctate transversely along the middle, the sides subparallel in basal, converging in apical,

half, but rounded medially, the median groove strong; color metallic green, the side margins, extending inward broadly at apex and narrowly at base to about lateral fourth, pale; elytra about as long as wide, but little wider than the prothorax, obtusely rounded behind, the striæ fine and moderately impressed, the punctures rather small and close-set; maculation rather solid, the basal fascia very narrow near the middle, trilobate externally, the second composed of two large spots, one adjoining the suture, the other lateral, the third of the usual biserrate form; suture broadly dark throughout, except at tip, the portion behind the third fascia broad but only feebly enlarged apically. Length 5.7 mm.; width 3.3 mm. California (locality not recorded).

Resembles *gemma*, differing in the less evenly arcuate but more apically narrowed prothorax, less rounded sides of the elytra, broader outline and relatively somewhat shorter basal joint of the hind tarsi; the punctuation and striation are almost similar but more close-set in *frater*.

In the *obliteratum* group the coloring is identical or very nearly so throughout, and the first joint of the hind tarsi much longer than the next two. The following forms seem to be worthy of adoption but would appear to be rather subspecifically connected than of full specific value:

Rather broadly oval, the dark colors predominating and without or with but little metallic lustre; head with a parabolic pale chevron behind the epistoma, the punctures sparse; prothorax but little more than twice as wide as long, moderately narrowed and with feebly arcuate sides from base to apex, rather strongly, sparsely and irregularly punctate throughout, dark throughout except narrowly along the sides and in a transverse antero-lateral area; elytra rounding at the sides basally, the striæ moderate, impressed, rather strongly and not very closely punctate, the intervals moderately convex, the three transverse dark areas broadly uniting with a large medial area before the middle, the zigzag third fascia more solid than usual, the sutural stripe rhomboidally expanded near the apex. Length (♀) 6.8 mm.; width 3.9 mm. Arizona (Yuma)... *obliteratum* Horn

A—Similar, except that the punctures of the head are stronger and more numerous, the elytra a little broader, with the punctures coarser and the interspaces more convex, especially in the male, the sutural posterior extension of the dark area not rhomboidally expanded near the apex but broad and oval and with arcuate sides. Length (♀) 6.6 mm.; width 4.2 mm. Sonora.... **sonoræ* Csy.

B—Nearly similar but less broadly oval, with the pallid areas whiter and contrasting more sharply with the dark areas, which are a little less extended; head a little smaller but otherwise as in *obliteratum*; prothorax similar; elytra slightly more elongate, the sides from the humeral rounding to about apical third straighter,

the striæ much finer, feeble, with rather strong but very widely spaced punctures throughout, the intervals only feebly convex; sutural stripe behind the third fascia narrower, more abruptly though very moderately, rhomboidally expanded at apex. Length (♀) 6.5 mm.; width 3.7 mm. Utah (Leeds and St. George),—Wickham.....*utense* n. subsp.

C—Stouter and larger, nearly as in *obliteratum* but broader, the head more strongly, closely and irregularly punctate; prothorax more elongate, scarcely twice as wide as long, nearly similar in outline and punctuation but relatively much smaller, the elytra more inflated and rounded basally, the sides thence feebly converging and straight to near apical third, with the elytral flanks above them somewhat concave; striæ and punctures strong, much closer in the deep lateral series and visible nearly to the apices; sutural dark stripe behind the third fascia parallel and straight at the sides to the tip, fading out apically but not at all expanded. Length (♀) 7.0 mm.; width 4.7 mm. New Mexico.

subimpressum n. subsp.

If the impressions of the elytral flanks should prove to be a constant character, this feature, together with size, the more abruptly narrowed prothorax and coarse close lateral striæ and punctures of the elytra, would undoubtedly prove *subimpressum* to be a very distinct species, but it is difficult to decide with but a single specimen at hand. I also think that *utense* is in reality rather a species than a subspecies, but am less convinced in regard to *sonoræ*, the status of which is probably truly varietal. My identification of *obliteratum* is wholly through published descriptions.

In the same way the forms clustering about *gilæ* Lec., may be defined as follows:

Broadly oval, pallid in color, the dark areas much reduced; dark area at the base of the head with a bilobate median projection; prothorax short, more than twice as wide as long, the sides strongly converging from base to apex and feebly arcuate; surface coarsely, sparsely punctured throughout its extent, having a median dark and greenish-metallic transverse spot, continued laterally by a brownish area and connected with the base at its ends; elytra moderately rounding at the sides to the base of the prothorax, having a dark scutellar spot narrowly extending along the base and prolonged backward laterally in three short lines, the second fascia consisting of two spots, one triangular, with the apex on the suture and one more quadrate and lateral, the third fascia consisting of two external spots and one subsutural, arcuately connected; suture narrowly dark throughout, with a small rhomboidal apical dilatation; striæ rather fine internally, very deep and close laterally, the punctures strong, very close-set in the lateral grooves; dark areas brown or feebly metallic-green;

tarsi as in the preceding group. Length 5.7–6.8 mm.; width 3.5–4.2 mm. Arizona (Gila River Valley).....*gilæ* Lec.

- A—Similar to the preceding but more narrowly oval, the dark areas still more restricted and paler brown, without metallic lustre or only feebly and partially greenish-metallic, the prothorax with the sides evidently less converging from base to apex, the elytra less abbreviated, being very nearly as long as wide, the striæ very fine and feeble, with moderate and widely spaced punctures and flat intervals internally, the striæ a little coarser, more approximate, rather coarsely and closely punctate and with feebly convex intervals laterally. Length 5.7–6.5 mm.; width 3.5–3.8 mm. Utah.....*pallidum* Csy.
- B—Similar to *gilæ* in its short and very broad form but less convex, the dark areas of similar extent and disposition but bright metallic green throughout, the prothorax as in *gilæ* but shorter and more transverse, two and one-half times as wide as long, much more sparsely, less coarsely and more unequally punctate, the green median bar extended laterally in only a very feeble brown tint, the median line similarly dusky; elytra much shorter than wide, more broadly obtuse at apex, the striæ internally very fine and feebly impressed, with rather small and widely separated punctures and flat intervals, or, externally, closer, coarser and deeper, more coarsely and less distantly punctate and with convex intervals, these characters however less noticeable than in *gilæ*; rhomboidal subapical spot on the suture obsolete. Length 6.2 mm.; width 3.9 mm. Arizona (locality not recorded).

pimalis n. subsp.

Lacustre and *texanum* are rather closely related, but the latter is more inflated, more deeply striate, with more convex intervals and more converging sides of the prothorax; they belong to the *americanum* group, but are very much broader in outline than that species.

A list of all our species, embodying the above conclusions, would be as follows:

labiatum Fabr.	dentatum Lec.
nitidum Lec.	solidum Csy.
americanum Dej.	frater Csy.
iridescens Csy.	gemma Csy.
lacustre Csy.	obliteratum Horn.
texanum Csy.	ssp. sonoræ Csy.
fontinale Csy.	ssp. utense Csy.
ovale Horn.	ssp. subimpressum Csy.
concinnum Csy.	<i>gilæ</i> Lec.
tessellatum Say.	ssp. pallidum Csy.
ssp. ellipticum Csy.	ssp. pimalis Csy.
grossum Csy.	robustum Horn.
	brevipenne Csy.

Brevipenne must be very closely allied to *robustum*, the form and sculpture being almost exactly the same, but the black suture, expanded before the apex into an unusually large transversely rhomboidal area, is a character wholly at variance with *robustum*, as described by Horn, and this, in conjunction with the widely separated habitats—Nova Scotia and Ohio—leads me to believe that we have to deal with two distinct though allied species.

Leistus Fröh.

The following belongs near *ferruginosus* Mann:

Leistus nigropiceus n. sp.—Form rather slender, moderately convex, polished, piceous-black to castaneous in color, the legs concolorous, the antennæ very slender, testaceous, with the basal joint a little darker; head smooth, four-fifths as wide as the prothorax, the sides very rapidly oblique behind the eyes; prothorax three-fifths wider than long, strongly rounded and dilated at the sides, strongly narrowed basally, the sides deeply sinuate for a short distance before the right and very sharp angles; impressions rather deep and punctured, the median stria feeble; sides abruptly but not broadly reflexed; elytra two-thirds longer than wide, two-fifths wider than the prothorax, rather distinctly broadening posteriorly, the sides broadly arcuate; humeri broadly rounded; striæ fine, distinctly but finely punctate, impressed, the intervals feebly convex, the third with three distinct foveæ near the third stria; legs rather long, slender. Length 7.4–8.0 mm.; width 2.65–2.8 mm. British Columbia (Metlakatla).—Keen.

This is probably the form appearing in our lists under the name *piceus* Fröh., but on reading the description of *analis* Dej., which is said to be synonymous, it appears clear that *nigropiceus* has the anterior thoracic impression much deeper, since it is as deep as the basal, and the median line feebler. It is more slender and with more cuneate elytra and larger head than *ferruginosus* and appears to be very abundant.

Pelophila Dej.

The species of this genus are northern subarctic in range and, though probably rather numerous in Alaska and various parts of the Hudson Bay regions, are so far as described very few in number. The following species was sent to me under the name *ulkei*, but is evidently different:

Pelophila shermani n. sp.—Moderately stout, convex, shining, æneous-black, the legs and antennæ black throughout; head four-fifths as wide as the prothorax, smooth, moderately biimpressed, the impressions

feebly rugose; antennæ (σ^7) stout, about half as long as the body, or (φ) shorter, two-fifths as long as the body; prothorax nearly three-fifths wider than long, the sides strongly rounded anteriorly, converging and becoming strongly sinuate basally, the angles sharp, generally less than right and somewhat everted, the sides narrowly but distinctly reflexed, strongly so basally, the anterior impression feeble and sparsely punctate, the basal deep and a little less sparsely punctate, the impressions near the angles very deep and conspicuous; median line strongly impressed; elytra two-thirds (σ^7) to three-fourths (φ) longer than wide, the base much wider than any part of the prothorax, widest near apical third (σ^7), or nearly parallel (φ), the sides broadly arcuate; humeri distinct though rounded; striæ broadly impressed, very obsolete and irregularly punctate, the intervals strongly convex, generally somewhat alutaceous; legs uniform in color throughout, brownish-black. Length 9.0–10.4 mm.; width 3.6–3.9 mm. Labrador (West St. Modest),—John Sherman.

The large foveæ of the elytra exhibit the most astonishing diversity among the three males and two females sent to me by Mr. Sherman and one female—the type—has the outer half of each elytron reddish-brown; in all the examples the lateral margin is greenish in lustre. In the type example the third interval has about four foveæ on each elytron, the fifth two on the right elytron but none on the left. In the second female the third interval has three foveæ on the right, five on the left, the other intervals not foveate. In the first male each elytron has only three or four foveæ on the third interval; in the second, the third interval of each elytron has about three foveæ, the right without other foveæ but the left with a single large fovea on the fifth interval and slightly before the middle. In the third male, the third interval of each elytron has four or five foveæ, the fifth interval of the right two, of the left four. The foveæ are so large as to interrupt the intervals in all except the second female, where they are not on the interval but rather in the sulcus between the third and fourth intervals, partially extending across but not interrupting the third. In all other respects these specimens, which came to me under the names *ulkei* and *rudis*, are so perfectly similar that it appears impossible that there should be more than one species. It is a rather remarkable case of instability but affects the elytra only.

Notiophilus Duméril.

The two following species have been in my collection for many years and, so far as it is possible to discover, have not been described hitherto.

***Notiophilus chihuahua** n. sp.—Parallel, rather depressed, shining, black, the upper surface with but very feeble metallic lustre; head subequal in width to the elytra, with very coarse subocular grooves and coarse median plicæ, the latter some six in number; labrum deep black, opaque, finely medially striate, narrowed at apex, less than one-half wider than long, the apex truncate and only about half as wide as the base; prothorax of the usual form, sinuately narrowed toward base, coarsely, closely punctured laterally and toward apex and base, the basal impressions distinct; elytra with seven impressed discal striæ which are strongly and closely punctured, the striæ distinct though only obsoletely punctate apically, the inner and outer striæ more widely separated, the sutural and marginal distinct and closely punctate, Length 5.4–5.6 mm.; width 1.8 mm. Mexico (Sierra Madre Mts., Chihuahua),—C. H. T. Townsend. Two examples.

Resembles *semistriatus* but differs in the peculiar opaque and anteriorly narrowed labrum and larger size. It is one of the larger species of the genus.

Notiophilus evanescens n. sp.—Small, elongate-oval, rather convex, strongly shining, black throughout, the upper surface with strong bronzy lustre; head decidedly narrower than the elytra, the subocular grooves deep and more acutely impressed than in the preceding, the plicæ six in number, the labrum very short and transverse, shining and bronzy; prothorax only moderately narrowed and with almost straight sides toward base, the peripheral punctures of the upper surface close-set but notably fine, the basal impressions narrow and rather feeble; elytra more oval than usual, convex, the seven discal striæ subequally and rather widely spaced, fine, feeble and finely, remotely punctate even basally, becoming vestigial and scarcely at all punctate behind about the middle, the sutural and marginal striæ subsimilar to the others. Length 4.2–4.6 mm.; width 1.5 mm. Colorado (Boulder Co.). Six examples.

Somewhat related to *æneus* but differing in the much shorter labrum, much less sinuate oblique sides of the prothorax, with denser pronotal punctures, and in its much smaller size.

Nebria Latr.

In this genus, which is much more extended in its range, it is probable that hardly more than a third of our species have been described—as a conservative estimate. They are assignable to seven well defined groups, of which the typical species are *ingens*, *gregaria*, *diversa*, *metallica*, *obliqua*, *virescens* and *pallipes*. These groups are not exactly equivalent to those suggested by LeConte, for in my opinion *diversa* should be a group by itself and is not associable with *ingens* and *ovipennis*; it has very short oval elytra,

not one-half longer than wide, but the humeri, which are wholly obliterated in *ingens*, are rounded though as distinct as in many other species, such as *gregaria* or even *eschsoltzi*; it is a remarkably isolated species and without any close ally. Again LeConte puts *mannerheimi* and *eschsoltzi* in a group by themselves and places *gregaria*, *obliqua* and *metallica* in a single group, which he holds to be different from the *eschsoltzi* group. In this I cannot possibly agree; the habitus is very different in the three species mentioned and they should go in different groups. I have assumed *gregaria* to be similar in its features to *trifaria*, having the same very long and subdepressed, posteriorly broadening elytra, with very feeble humeri; both of these species are wanting in my collection, although there are some that are closely allied, such as *mobilis*, *catenata* and *cuneata*. The new forms in my collection may be assigned to the following groups:

Group *ingens* Horn.

This is a small group, composed of two species besides *ingens*, one *ovipennis* Lec., of which I have a very good example from Placer Co., taken by Koebele and the other as follows:

Nebria columbiana n. sp.—Moderately slender, unusually convex, shining, black, the abdomen rufescent apically; legs black, the tarsi piceous; first four antennal joints black, the remainder testaceous; head smooth, with two small and feeble impressions which are obsoletely rugulose; antennæ slender, three-fourths as long as the body; prothorax much wider than the head, two-fifths wider than long, strongly rounded at the sides anteriorly, the sides strongly converging and sinuate posteriorly, becoming parallel and straight for a long distance before the angles, which are very acute and somewhat posteriorly produced, the base truncate between them, less than three-fifths the maximum width; sides moderately reflexed; impressions distinct, almost impunctate, those near the angles deep and with a few punctures; elytra oval, nearly twice as long as wide, one-half wider than the prothorax, widest slightly behind the middle, the sides broadly, evenly arcuate and gradually converging to the base, without trace of humeri, more obtusely rounded behind; surface very convex and shining, brilliant violaceo-cupreous in color, the striæ deeply impressed, impunctate and with strongly convex intervals, having three foveæ on the third, none on the fifth and three on the seventh, all interrupting the intervals; legs and tarsi long and slender, the stiff hairs beneath the latter conspicuous. Length (♂) 10.0 mm.; width 3.9 mm. British Columbia (Inverness),—Keen.

One of the most brilliant and isolated species of the genus; besides

coloration and the smaller size, it differs from *ovipennis* in its more basally narrowed prothorax, shorter, more convex and more deeply striate elytra and longer antennæ.

Group *gregaria* Fisch.

The outline in this group is peculiar and very different from any other in the very elongate, more or less depressed elytra, the sides of which gradually converge with very feeble arcuation from near apical third or fourth to the humeri, which round broadly to the base; so far as identifiable by the writer, the group will comprise, besides *gregaria*, *trifaria* and *purpurata* of LeConte, the following three species:

Nebria catenata n. sp.—Black, with more or less piceous tinge, the elytra sometimes blackish-brown, probably from immaturity; legs and under surface black when mature, the antennæ piceo-testaceous, the four basal joints black; upper surface shining, rather depressed and without trace of metallic coloration at any part; head smooth, much narrower than the prothorax, the two anterior impressions broad and feeble, the usual two rufous spots evident; antennæ slender, three-fifths as long as the body; prothorax fully one-half wider than long, the sides rather strongly rounded anteriorly, thence strongly converging and broadly sinuate to the basal angles, which are right and sharp, the sides feebly punctulate, broadly but very feebly reflexed, except the marginal bead which is elevated as usual, the transverse impressions moderate, finely, sparsely punctate, the lateral basal impressions, at some distance from the angles, elongate and deep; base three-fourths the maximum width, transverse to the broad truncate and feeble lateral posterior projections; median line well impressed; elytra (♂) twice as long as wide and a third wider than the prothorax, or (♀) a little shorter and relatively broader, widest at posterior fourth, the striæ rather fine, moderately impressed and evidently punctured, the intervals broadly, feebly convex, the third, fifth and seventh each with about four or five foveæ, which completely interrupt the intervals and, by the rounding in of the striæ at these points, produce a catenated appearance; legs long and slender. Length 12.5–13.5 mm.; width 4.7–5.2 mm. Colorado—Levette collection.

Evidently allied to *trifaria* Lec., but in that species the head is said to be scarcely narrower than the prothorax, the side margins of the latter strongly reflexed and the elytral striæ impunctate. The series at hand numbers seven examples, which exhibit but little variability, except as to the number of interstitial foveæ; in one example there is only one fovea on the fifth interval, though the others have their normal number.

Nebria mobilis n. sp.—Much more slender than the preceding, depressed, shining, piceous-black, the elytra brilliant and polished metallic green, which changes to violet under very oblique illumination; under surface and legs blackish-piceous; antennæ slender, two-thirds as long as the body, unicolorous throughout and dark testaceous; head smooth, nearly as in the preceding but with rather more evident anterior impressions, much narrower than the prothorax, the latter about two-fifths wider than long, the sides broadly and rather feebly rounded, strongly converging posteriorly and becoming straight and parallel for some distance before the angles, which are right and sharp; sides rather broadly and strongly impressed, the transverse impressions broad and feeble, barely at all punctured, the lateral basal nearly as in *catenata*, the median line well impressed; elytra elongate-oval, only a little wider near apical third, the sides broadly rounding, feebly converging thence to the broadly rounded and feeble humeri, about a third wider than the prothorax; striæ fine, feebly impressed, finely but evidently punctured, the intervals broadly and very moderately convex, the third and seventh interrupted by three or four moderate foveæ, the fifth apparently never foveate; legs long and slender. Length 11.5–13.3 mm.; width 4.4–4.6 mm. Colorado—Levette collection. Three examples.

More slender, depressed and more feebly sculptured than the preceding and with different coloration. It agrees very well with the description of *gregaria*, given by Horn and based upon an Alaskan individual, except that the striæ are punctured and not devoid of punctures as stated of *gregaria*, and with the seventh interval foveate as well as the third—the only one described as being foveate in *gregaria*. From *purpurata* Lec., it differs in its polished elytra, which are said to be without metallic gloss in that species, in having the head distinctly narrower than the prothorax, though less markedly so than in *catenata*, in its shallow and not deep pronotal impressions and in having only the third and seventh, and not the third, fifth and seventh, intervals interrupted by foveæ.

Nebria cuneata n. sp.—Black or slightly piceous, the legs and antennæ rufo-piceous throughout, the elytra feebly rufescent apically, slender, rather depressed, strongly shining; head smooth, much narrower than the prothorax, the anterior impressions feeble; prothorax two-fifths (♂) to one-half (♀) wider than long, the sides rounded anteriorly, converging and sinuate posteriorly, becoming parallel before the angles, which are right or slightly everted and sharp; surface rather broadly concave and feebly punctulate at the sides to the elevated bead, the anterior impression almost obsolete, the posterior broad but rather deep, punctulate, the lateral impressions rather deep and adjacent to the angles; median line well impressed; elytra fully twice as long as wide, oval, widest at about three-fifths, the sides broadly arcuate and moderately converging to the broadly rounded and feeble humeri; striæ fine but rather deeply

impressed, impunctate, the intervals distinctly convex, without large interrupting foveæ, the third with four small setigerous punctures, which are at the outer side and adjacent to but not on the stria; legs slender, moderately long. Length 10.5-10.8 mm.; width 3.9-4.2 mm. Alaska, —Ulke. Four examples.

For many years this species figured in my collection under the name *gregaria*, but on comparing it with the description given by Horn (Tr. Am. Ent. Soc., 1870, p. 100) I am unable to convince myself that it is in any way very closely allied. The size is rather smaller than the 11.5 mm. given as the length of *gregaria* and there is no trace whatever of any metallic lustre, the elytra of the latter being said to have a distinctly bluish-green tinge. It will be noted that although so similar in general habitus to *trifaria*, *purpurata*, *catenata* and *mobilis*, this species and *gregaria* differ radically in having minute setigerous punctures adjacent to the third stria, and not large foveæ interrupting the intervals as in those species. *Bifaria* Mann., I have not seen and so can venture no opinion as to its relationships.

Group *metallica* Fisch.

In this group I would place besides *metallica*, *mannerheimi* and *sahlbergi* Fisch., *gebleri* of Dejean, of which there is an example at hand taken in British Columbia by Prof. Kemp, *eschsoltzi* Mén., which I took in great abundance in California, and probably *rathvoni* Lec., which is unknown to me, the three species described below. With the exception of *sahlbergi* and related forms, such as *mæsta* Lec. and *parvula*, which have a very wide range in North America, this group is confined to the Pacific coast regions. The sides of the prothorax vary from strongly sinuate posteriorly to but little more sinuate than in the *obliqua* group, as for example in *oregona*, which is only placed here and not in the *obliqua* group because of its broad form and habitat, harmonizing better with *mannerheimi* and *metallica* than with *obliqua* in these as well as some other respects.

Nebria tenuipes n. sp.—Moderately stout and convex, cuneiform, shining, rufo-piceous, the elytra and under surface nearly black, the entire antennæ and legs pale testaceous; head smooth, much narrower than the prothorax, the anterior impressions moderate, on a line with the anterior margin of the eyes and separated by a third of the interocular distance; antennæ slender, filiform as usual and two-thirds as long as the body; prothorax slightly less than one-half wider than long, the sides

strongly rounded, strongly converging from about the middle and gradually strongly sinuate to the right and very sharp, subverted and prominent angles; margins very narrowly reflexed; transverse impressions feebly punctate, the anterior feeble, the posterior rather strong, the lateral impressions moderately deep and very near the angles; median line finely striiform; elytra oval, rather long, three-fourths longer than wide, widest at three-fifths, the sides broadly arcuate, the humeri broadly rounded; striæ rather fine but impressed, finely punctured, the intervals feebly convex, nearly flat laterally, where the striæ are feeble and unimpressed; third stria with three to four strong setigerous punctures at the inner side; legs long and very slender. Length 10.5–11.4 mm.; width 4.3–4.4 mm. California (Alameda and Humboldt Co.) and Oregon (Clackamas Co.).

Allied to *eschscholtzi* but much more elongate, with longer, more cuneiform and less oblong-oval elytra, less transverse prothorax and paler coloration, not black throughout the body as in that species.

Nebria oregona n. sp.—Stout, moderately convex, shining, deep black throughout the body, the legs piceous-black, the tarsi barely paler; antennæ moderately pale, testaceous, the basal joint alone blackish; head smooth, with obsolete impressions, about three-fourths as wide as the prothorax; antennæ filiform, two-thirds (♂) to three-fifths (♀) as long as the body; prothorax a third (♂) to one-half (♀) wider than long, the sides moderately rounded, becoming oblique in about basal half and straight to the slightly obtuse but very sharp basal angles; surface very narrowly but deeply concave and reflexed at the sides; impressions nearly as in the preceding but still less punctured and, on the disk just behind the middle of the length and slightly nearer the sides than the median line, there is a small rounded impression; elytra broad, much wider than the prothorax, a little wider behind the middle than at base, scarcely more than one-half longer than wide, the sides very evenly and moderately arcuate from the rather broadly rounded but very distinct humeri to the posterior rounding; striæ rather strongly impressed, very feeble laterally, finely punctured, the intervals, except laterally, distinctly convex, the third with three or four setigerous foveæ; legs slender, rather long. Length 10.3–11.5 mm.; width 4.3–4.8 mm. Oregon (Clackamas Co.).

This species seems not to be allied closely to any other but may be placed in the *mannerheimi* section of the group.

Nebria arkansana n. sp.—Much narrower than the two preceding, more nearly as in *sahlbergi* but smaller and with less developed head and prothorax, shining, black, the under surface frequently rufescent, the legs piceo-rufous, the entire antennæ testaceous; head small, unimpressed, the antennæ slender, three-fourths as long as the body; prothorax one-half wider than long to a little less, formed as in *sahlbergi*, the sides strongly converging and sinuate posteriorly to the right and very sharp

angles; surface moderately concave and reflexed laterally, the impressions nearly as in *sahlbergi*; elytra oblong-oval, much wider than the prothorax, just visibly widest at three-fifths, the sides broadly arcuate to the very distinct though rounded humeri; striæ feebly impressed, finely, feebly punctate, the intervals feebly convex to nearly flat, the third stria with two to four punctures; legs rather slender but not very long. Length 8.0-9.4 mm.; width 3.1-3.3 mm. Indiana and Arkansas. Five examples.

Differs from *sahlbergi* in its small size, relatively much smaller head and prothorax, the latter less inflated anteriorly, longer antennæ and some other evident features. The small impression at each side of the middle of the pronotum, mentioned under *oregona*, must be a general character to a great extent, as it is visible also in this species and *sahlbergi*, of which I have a large series from Labrador and New Hampshire.

Group *obliqua* Lec.

The species of this group are rather numerous, inhabiting the more eastern and temperate parts of the continent and are particularly abundant in Colorado and neighboring parts of the lower Rocky Mountain system; they are narrower and more elongate than those of the *metallica* group and always have the sides of the prothorax oblique and nearly straight posteriorly to the obtuse though nearly always sharply defined basal angles. I regard provisionally a specimen collected by Mr. Schwarz at Garland, Col., as representing *obliqua*, although there are three or four punctures on the third stria; as it agrees with the description in all other particulars, this plurality of foveæ would seem to be inconclusive, in view of the general variability in this respect. Of *obtusa* Lec., I have a single example taken by Wickham at Provo, Utah. The following three seem to be as yet undescribed:

Nebria incerta n. sp.—Form nearly as in *obliqua* and similarly deep shining black, with piceous legs, but with the hind body relatively shorter and broader; surface without trace of metallic coloration; head smooth, polished and convex, unimpressed; antennæ slender, testaceous throughout; prothorax fully three-fifths wider than long, formed as in *obliqua* but with the anterior transverse impression very feeble; elytra oblong, parallel, two-fifths wider than the prothorax and one-half to three-fifths longer than wide, the sides moderately arcuate, the basal bead meeting the marginal in a very obtuse but evident angle; striæ not very fine but only very feebly impressed, the third with three to five small setigerous foveæ, the intervals almost flat; femora blackish, the tibiæ and

tarsi paler, castaneous. Length 10.0–11.0 mm., width 3.9–4.0 mm. Colorado. Levette collection. One example is marked "Indiana" but this is probably a mistake.

Allied rather closely to *obliqua* but having more numerous strial foveæ and a feebler anterior transverse thoracic impression.

Nebria testaceipes n. sp.—Stouter than the preceding and more convex, shining, dark rufo-piceous, the elytra clear castaneous; entire legs and antennæ pale testaceous; head relatively small, two-thirds as wide as the prothorax, convex, smooth and unimpressed; antennæ (♂) about three-fifths as long as the body; prothorax three-fifths wider than long, the sides rather broadly and strongly rounded, oblique and straight behind, the sides rather broadly and strongly reflexed; transverse impressions very unequal, feebly punctured, the anterior obsolescent, the posterior strong, with the lateral impressions deep and oblique; median stria very fine and feeble; elytra oblong, parallel, with very feebly arcuate sides, three-fifths longer than wide, fully one-half wider than the prothorax, the humeri strongly marked though broadly rounded, the basal bead meeting the marginal in a blunt angulation, so very obtuse as to be scarcely evident; striæ moderate, finely, not closely punctulate, the third with three or four small setigerous foveæ; intervals very feebly though sensibly convex; legs long and slender. Length 10.0 mm.; width 4.1 mm. British Columbia (Glenora),—Wickham. A single male.

This species, though the type may possibly be somewhat immature, is readily seen to differ from *obliqua* in the relatively much smaller head and prothorax, more oblong and less laterally arcuate elytra, pale testaceous legs and other features of structure and habitus.

Nebria texana n. sp.—More depressed and less parallel than in either of the preceding or *obtusa*, rather shining, the elytra polished, black, the legs also black throughout and the antennæ blackish-testaceous; head small, smooth, the anterior impressions feeble but evident and widely separated; antennæ three-fifths as long as the body; prothorax nearly as in the preceding but with the sides more narrowly rounded anteriorly and the oblique posterior part longer; elytra one-half longer than wide, sensibly wider behind the middle than at base, the sides broadly arcuate; humeri less evident than in others of this group, broadly rounded, the basal and marginal beads meeting in an even curve and without trace of junction or angulation; striæ moderately fine, deeply impressed and strongly but not very coarsely punctate, the third with three or four setigerous foveæ; intervals very distinctly convex; legs slender but not very long. Length 10.0 mm.; width 3.9 mm. Texas. A single male example.

Quite distinct from any other of this group in its posteriorly broadened elytra, more depressed surface, impressed and punctured striæ and entirely black legs.

Group *virescens* Horn.

An isolated group in the genus, consisting hitherto of a single species from Vancouver Island. I here venture to add another, based upon rather radical disagreement with the published description of *virescens*:

Nebria brevis n. sp.—Form short and broad, evenly, moderately convex, shining, black with faint dark greenish-blue lustre above, the legs, antennæ and under surface black; head small, smooth, nowhere rugose, having a very feeble oblique sigmoid impression at each side of the vertex; antennæ (♂) filiform but shorter than usual, much less than half as long as the body, piceous distally; prothorax transverse, more than one-half wider than long, widest only just before the middle, the sides almost evenly rounded from apex to the obtuse but sharply defined basal angles, becoming perceptibly straighter before the latter; surface broadly and strongly concave and reflexed at the sides, the anterior impression narrow but distinct medially, the basal broad and rather deeply concave, very finely subpunctulate, the lateral impressions deep, large and anteriorly oblique; base truncate throughout the width, three-fourths the maximum width; elytra short, oblong, not quite one-half longer than wide, parallel, feebly and evenly arcuate at the sides, rather abruptly broadly rounded at apex, the humeri distinct though rounded; striæ fine, very feeble, strongly though finely punctured suturally, the outer ones subobsolete as well as scarcely punctured, the third with two small and feeble setigerous punctures; intervals almost flat; legs slender but rather short. Length 9.0–11.0 mm.; width 3.8–4.25 mm. Oregon (Corvallis, Mayville and Philomath),—Moznette. Five examples.

In *virescens*, according to G. H. Horn, the length is 12 mm., the prothorax only about a third wider than long, with the sides moderately broadly reflexed, and the head near the eyes is said to be subtriangularly impressed and rugose, of which character there is barely a vestige in *brevis*, but the oblique smooth sigmoid impressions are very evident. If the original description is to be relied upon, there can be no doubt that *brevis* is specifically different from *virescens*.

Group *pallipes* Say.

In this peculiar group of the Atlantic regions there are three very sharply differentiated species, almost invariably mingled together in collections. If the elytra in either sex of *pallipes* be examined, it will be found that each is obtusely rounded and very feebly, arcuately and subtransversely subtruncate at tip; with this premise the two following species may be identified very readily:

Nebria lacustris n. sp.—Coloration and lustre throughout as in *pallipes* but shorter in form and with relatively smaller head and prothorax; head with two smooth impressions anteriorly; antennæ three-fifths as long as the body; prothorax as in *pallipes* but less broadly rounded at the sides anteriorly, the posterior oblique part rather longer and the sides more broadly though not more strongly reflexed; elytra similar though exceeding the prothorax much more decidedly in width and with the punctures of the deeply impressed striæ coarser and more evident; apices of the elytra in both sexes very acutely angulate, the truncature thence to the suture extremely oblique and feebly sinuate. Length 9.7–10.2 mm.; width 3.9–4.3 mm. Wisconsin (Bayfield) and Minnesota.

The difference in form of the elytral apices is radical, but the species is also distinct from *pallipes* in its smaller size, shorter form, relatively smaller anterior parts, stronger strial punctures and more strongly rounded and broadly reflexed sides of the prothorax. LeConte evidently recognized this species as his “race 2” of *pallipes* (Bull. U. S. Surv., p. 477) because of its divergence from *pallipes* in certain general external features.

Nebria expansa n. sp.—Coloration and general characters of form, sculpture and lustre nearly as in *pallipes*, but larger, with more elongate-oblong elytra and much broader and more anteriorly inflated prothorax; head nearly similar but relatively much smaller; prothorax notably large and transverse, almost twice as wide as long, the sides strongly rounded anteriorly, strongly oblique and broadly, just visibly sinuate thence to the very obtuse angles; surface with the sides very broadly concave and strongly reflexed; anterior and basal transverse impressions conspicuously deep; base relatively narrower than in *pallipes*; elytra more elongate, parallel, less rounded at the sides, two-fifths wider than the prothorax, the striæ as in *pallipes*, except that the punctures are less evident and generally subobsolete suturally; apices exactly as in *lacustris*. Length 11.0 mm.; width 4.6–4.7 mm. Texas and Indiana. Two female examples.

Distinguishable at once from *pallipes* by the elytral apices, larger size and much broader prothorax; from *lacustris* by the larger size, feebler elytral punctures and relatively much larger prothorax.

Carabus Linné.

This genus, so remarkably developed in the palæarctic fauna, is comparatively undeveloped in North America and it is long since any allusion to our species has been made in a systematic way. Meanwhile there have been a number of forms in my collection that I have not been able to identify, and as they are probably undescribed, the present occasion is utilized to bring them forward.

Carabus lecontei n. sp.—Stout, convex, strongly shining and feebly sculptured, deep black, the elytral margins strongly and the broad thoracic margins more feebly bluish; head two-fifths as wide as the prothorax, the anterior impressions at the sides of the epistoma deep; antennæ rather long, black, the fifth joint not quite three times as long as wide; prothorax large, transverse, four-fifths as wide as the elytra, nearly one-half wider than long, the sides subparallel, broadly, feebly rounded anteriorly, thence just visibly converging and nearly straight to the rounded basal angles, which are very broadly but feebly produced posteriorly, the median truncate part of the base equal to half the maximum width; surface broadly convex, smooth and wholly punctureless, except in the broadly concave side margins, which become very broad and deep basally, the smooth lateral edges very thick; anterior impression obsolete but with a very few faint punctures, the transverse basal impression conspicuously deep and punctured; median stria fine, entire; elytra not quite one-half longer than wide, oval, slightly broader behind the middle, evenly and strongly convex, rather broadly reflexed at the sides, having close-set unimpressed series of very fine, well spaced punctures, which become coarser and altogether confused on the flanks, also having three series of deep non-metallic foveæ; hind tarsi much longer than the tibiæ; under surface and legs deep black throughout, except the side-pieces of the prosternum, which are violaceous. Length 24.0 mm.; width 10.7 mm. Texas. A single female example.

The type formed a part of the Levette collection and has puzzled me for many years; it is related to *sylvosus* Say, but differs in the much larger and broader prothorax with less rounded and less basally converging sides, distinct median stria and deeper basal transverse impression of the latter and relatively shorter elytra, having the series of punctures wholly unimpressed.

Carabus patulicollis n. sp.—Elongate, subparallel, rather strongly convex, shining, piceous-black, piceo-rufous beneath—probably immature,—the legs and antennæ black; head half as wide as the prothorax, with very prominent eyes, finely punctured and rugulose basally, the vertex longitudinally and closely plicate toward the eyes, the impressions at the sides of the epistoma deep, very smooth and polished; antennæ three-fifths as long as the body; prothorax transverse, nearly one-half wider than long, fully three-fourths as wide as the elytra, with broad flat polished vermicular rugæ throughout and with a few fine scattered punctures sublaterally, becoming gradually coarse, dense, punctured rugæ in the lateral concavity and in about lateral fourth of basal half, where there is a broad feeble longitudinal impression at outer fourth; margins fine, broadly and moderately reflexed basally, more abruptly anteriorly, widest a little before the middle, the sides broadly rounded, distinctly converging and straight in about basal half to the rounded and posteriorly produced angles, the base wider than the apex, the truncate part rather more than half the maximum width; surface without anterior or posterior transverse impressions, the median stria fine but distinct;

elytra three-fourths longer than wide, oval, the side margins concolorous, the surface convex, with sculpture somewhat as in *tædatus*, not regularly striiform however but much confused, granular on the flanks, the foveæ nearly similar. Length 19.5 mm.; width 8.0 mm. A single male from an unrecorded locality but probably taken in Colorado.

Differs from *tædatus*, of which group it is a member, by the very broad prothorax and confused elytral sculpture, in which, however, the *tædatus* type can be traced very readily.

Carabus franciscanus n. sp.—Sculpture, coloration and lustre as in *tædatus*, the body much more elongate and with the elytra deplanate toward the humeri and not convexly declivous; head not quite so large and with radially different sculpture; last joint of the maxillary palpi obtriangular and longer than the preceding joint; surface with the lateral impressions not short and anterior as in *tædatus* but very deep and prolonged posteriorly to the line of the middle of the eyes, gradually expanding and very coarsely, strongly, vermicularly rugose, the rugæ throughout its length extending inwardly nearly to the median line of the vertex and front, which is elevated in a ridge-like manner, with the summit of the ridge deeply canaliculate except anteriorly; neck strongly rugose, smooth medially; antennæ less than half as long as the body, tapering distally; prothorax as in *tædatus* but relatively larger and but very little wider than long, three-fifths as wide as the elytra, the latter much more elongate and less convex, gradually declivous laterally, still more gradually basally, in outline and sculpture nearly as in *tædatus*, the sides straighter basally, the side margins much more broadly reflexed; hind tarsi about as long as the tibiæ. Length 21.5 mm.; width 8.5 mm. California (coast region near San Francisco). A single male.

At first I thought that this species might be regarded as a subspecies of *tædatus*, but on examining the structure of the head and the flanks of the elytra, especially in the vicinity of the humeri, it becomes evident that it has no such close relationship, though a member of the *tædatus* group.

Carabus tædatus ssp. **montanicus** nov.—Similar to *tædatus* in general form, sculpture and coloration but larger, somewhat stouter and with relatively slightly larger head and prothorax; head nearly similar, the vertex broadly almost smooth, with a few longitudinal folds near the eyes; antennæ perceptibly longer and stouter; prothorax similar in outline and sculpture but with distinct punctures scattered medially, similarly dense laterally and basally; elytra similar in sculpture and convexity throughout, but a little broader, nearly three-fifths longer than wide, one-half wider than the prothorax; abdomen rufo-piceous. Length 21.5 mm.; width 9.0 mm. Idaho (Cœur d'Alene). A single male example.

The type of this species was sent to me under the name *oregonensis*

Lec., which it evidently is not, as *oregonensis* is said to be blue-black, with the prothorax almost opaque and densely, intricately rugose, the elytra almost twice as wide as the prothorax and, together with the head, proportionally smaller, narrower and much more finely and densely rugose than in *tædatus*; its length is 21.3 mm.

Of the common *serratus* Say there seems to be a rather well marked subspecies as follows:

***Carabus serratus* ssp. *vegasensis* nov.**—Similar to *serratus* in coloration, general form and sculpture throughout, but with the elytra not feebly convex and very gradually declivous laterally, but strongly convex with the sides rapidly and more steeply declivous; elytral sculpture a little stronger, the punctures of the close-set interstitial series separated by more deeply impressed transverse lines. Length 17.0–17.5 mm.; width 7.2–7.4 mm. New Mexico (Las Vegas and also from an unrecorded locality); also one, unlabeled, from the Levette collection, possibly from southern Colorado.

Of *serratus* I have a good series marked Pennsylvania and Washington State; *vegasensis* seems to be a more southern modification.

In the Crotch table of *Carabus*, *tatumi* Mots., is given as a synonym of *mæander* Fisch.; this is far from being the fact, as the following description of *tatumi*, given by Motschulsky, will show:

“***Carabus tatumi* Mots.**—Color et statura *C. serrati* Say, sed elytris imbricato-striatis, cancellis distinctis, elevatis; oblongus, subconvexus, supra nigro-subcyaneus, limbo paulo dilutiore; capite fere glabro; thorace capite duplo latiore, quadrato, antice arcuatim angustato, postice punctato, latioribus marginatis, reflexis; angulis posticis rectis, apice rotundatis, modice prominulis; elytris thorace paulo latioribus, subovatis, antice truncatis, 16-striatis, interstitiis subconvexis, transverso-rugatis, 4, 8 et 12 catenato-interruptis, lævis, ♀ long. 8 l.—lat. elyt. 3 l.—lat. thor. 2½ l. De la Hudson-Bay, dans l’Amérique arctique.”

It seems to be related closely to *serratus* Say, but of more slender form and stronger sculpture; it is recorded as a distinct species in the Munich catalogue but by Horn (Trans. Am. Ent. Soc., 1870, p. 70) is said to be *serratus*; however, as this author, just above, makes *Calosoma prominens* Lec., the same as *peregrinator* Guér., complete dependence cannot be placed on the reference. *Hudsonicus* Mots., is probably *mæander*. *Gladiator* Mots., is said by Horn (l. c.) to be *baccivorus* Fisch.

Calosoma Weber.

In this genus and the closely related *Callisthenes*, there are still a number of species not represented in my collection, such as *pro-*

tracta,* *prominens*, *eremicola*, *rugosipennis*, *simplex*, *wilkesi*, *dietzi*, *latipennis*, *moniliata*, *subænea* and the true *luxata*, which seems to be decidedly a *rara avis*. *Prominens* was seemingly represented by a series of four exactly similar examples, taken at various localities, from Albuquerque, New Mexico to southern California, until Mr. Fall discovered that they are not that species at all but another quite distinct, which he named *parvicollis*, and, on turning to the original description of *prominens* under the preoccupied name *angulata* (Ann. Lyc. N. Y., V, p. 199) it becomes apparent that most of us do not have the true *prominens*, which is a very large species 1.3 inch in length, if the "Long. .13" as published is to be so translated. On the other hand, however, I find about a dozen forms that have no names whatever as yet, and it is my purpose to describe these at the present opportunity. It seems tolerably certain that the *angulata* of Chevrolat, does not occur this side of the Mexican boundary; at least the good figure given by Bates in the "Biologia" has a very exotic appearance, and I certainly have never seen an example of it in any American collection. It seems to be peculiarly characteristic of the fauna of extreme southern Mexico, although Mr. Bates makes a subsequent allusion to Chihuahua.

Of the forms previously described by the writer (Ann. N. Y. Acad. Sci., IX, p. 340), the five announced as species still seem to be valid and isolated forms, and of those named as varieties all are valid, at least as subspecies, excepting *expansa*, which proves to be merely a synonym of *calida*. One at least, by the discovery of additional material in central New Mexico, can be shown to have higher value than originally assigned it; this species is

Calosoma microsticta Csy.—Similar to *obsoleta* in sculpture, lustre and coloration, but much larger, with larger head, more transverse prothorax, the sides of which are rather more reflexed basally and relatively much shorter and broader elytra; punctures of the sternal side-pieces and sides of the abdominal base coarser and more conspicuous. Length 20.0–23.5 mm.; width 9.6–11.0 mm. New Mexico.

*Believing that it is best to reduce everything pertaining to nomenclature to rigid law and system, it seems evident that the gender to be given generic names should be made systematic—determined in fact solely by the form of the ending and not depend upon the vagaries and exceptions of language. For this reason it would seem better that all words ending, for example in *a*, should be considered feminine, in accordance with the general Latin rule, irrespective of Greek gender, and I have therefore considered names having such endings as *soma* and *derma* as feminine, for nomenclatorial reasons, and not neuter, as would be necessary from purely philological considerations.

A pair in perfect state of preservation was sent me by Mr. Woodgate from Jemez Springs; the male is relatively broader than any female in a series of nine specimens of *obsoleta*, and, in the female, the still broader elytra are evidently wider behind the middle than at base.

The two following may be considered subspecies of *tepida* for the present, although the probabilities are that they are rather species than subspecies, as I cannot conceive of interbreeding; all comparisons are made from the male:

***Calosoma tepida* ssp. *cælator* nov.**—Coloration and sculpture nearly as in *tepida*, but more shining, the elytral rugosity larger; body slightly smaller and narrower, the head relatively larger and the prothorax smaller, the latter less transverse, three-fourths wider than long, the sides posteriorly more oblique and straighter, the surface more impressed and laterally reflexed at the sides of the base, otherwise similar; elytra less oblong, narrower at base and more inflated behind the middle, three-fourths longer than the basal width, the latter four-fifths of the maximum width, foveæ larger, smoother and more conspicuously cupreous. Length 19.0 mm.; width 8.7 mm. Idaho (Cœur d'Alene). A single male, taken by Lieut. James A. Leyden.

Distinct in its smaller size, narrower and more cuneate outline, more impressed prothorax with more oblique sides posteriorly and brighter elytral foveæ.

***Calosoma tepida* ssp. *indigens* nov.**—Similar to *tepida* in coloration, lustre, very dense sculpture, small and moderately evident foveæ and general form and impressions of the pronotum, but with the body smaller in size and relatively very much narrower; head not so large; prothorax smaller, similarly rounded at the sides and feebly impressed and reflexed laterally at base, a little less than twice as wide as long; elytra narrower, relatively more elongate, otherwise nearly similar, the side margins very narrowly reflexed. Length 15.5–17.0 mm.; width 7.3–7.7 mm. Oregon. From two different localities, both unrecorded.

This form may be distinguished by its small size and very much narrower outline.

Although the description of *Calosoma irregularis*, given by Walker, accords very well with *tepida*, it will be noted that its size seems considerably greater, the length as given by the author being 12 lines or 24 mm. It is also described as æneous-black and there are some other divergencies.

It is stated by Bates that *carbonata* Lec., is synonymous with *peregrinator* Guér. It is true they bear a very decided mutual

resemblance and are scarcely distinguishable superficially, having about the same size, the same sculpture and great similarity of outline, though in *peregrinator* the head and prothorax are relatively a little smaller and the hind tarsi evidently shorter; but, on examining the last ventral segment of the female, which is similarly punctate and pubescent in both, I find that the posterior contour is parabolic, with the apex distinctly blunt though rather narrow in *carbonata*, and triangular, with the apex only very narrowly blunt in *peregrinator*, as shown by a female before me from the Sierra de Durango. I am therefore inclined to consider *carbonata* a subspecies of *peregrinator*.

The following are two other subspecies of this widely distributed type form:

***Calosoma peregrinator* ssp. *ingens* nov.**—A little shorter and broader in the hind body than *carbonata* and somewhat larger in size, with relatively distinctly smaller prothorax, which is however similar in form and sculpture; elytra with similar habitus and sculpture; tarsi nearly similar but scarcely so stout, the claws more elongate and more arcuate. Length 26.5–30.0 mm.; width 11.6–12.4 mm. California (San Diego). A single pair from Mr. Ricksecker.

The fifth ventral of the female is as obtusely rounded as in *carbonata*, but the punctures instead of being gradually dense medially and posteriorly, as in that species, are everywhere sparser and stronger, with only a small area near the centre of the disk in which they become smaller and dense. This is a maritime modification, *carbonata* proper being native to the higher interior regions, especially of New Mexico.

***Calosoma peregrinator* ssp. *amplipennis* nov.**—Similar to *carbonata* in color, lustre and sculpture throughout, except that the elytral foveæ are larger and more evident; body a little smaller, the elytra notably shorter and broader, distinctly less than one-half longer than wide; head and prothorax a little smaller but of similar outline and sculpture. Length 25.0 mm.; width 12.3 mm. Locality unrecorded.

The single type is unfortunately a male, for the female, as shown by Fall, is the sex having the distinctive sexual characters in this group; it is quite readily recognizable, however, by its much shorter elytra and is probably from New Mexico or southern Colorado.

The following belongs to the *peregrinator* group but is I think specifically different:

Calosoma subgracilis n. sp.—Narrow, convex, alutaceous, the elytra highly polished, deep black throughout; head as in *peregrinator* and *carbonata* but smaller, the antennæ much more slender; prothorax as in the latter but smaller and less transverse, scarcely more than three-fourths wider than long; elytra parallel, more elongate, more than two-thirds longer than wide, the punctures throughout extremely small, similar throughout the length, the foveæ minute and scarcely discoverable, the transverse rugulæ obsolete, except a few vestiges very near the humeri; legs slender; hind tarsi very slender, scarcely more than three-fourths as long as the tibiæ. Length 20.5 mm.; width 8.4 mm. Locality unrecorded in the Levette collection.

The single male type represents a close ally of *carbonata*, but the very much more slender form, small size, smaller head and prothorax, more glossy elytra and more slender antennæ and legs would seem to be specific.

Calosoma apacheana n. sp.—Form somewhat as in *carbonata* though smaller and narrower, with relatively larger head and prothorax, the lustre less shining, the sculpture stronger; head nearly similar but with more elongate lateral furrows, evidently more than half as wide as the prothorax; antennæ slender, not quite one-half as long as the body; prothorax very nearly twice as wide as long and three-fourths as wide as the elytra, the outline and sculpture as in *carbonata*, except that each of the postero-lateral impressions in the type is divided completely by an oblique transverse ridge near basal third; elytra oblong, parallel, together obtusely subangulate at apex, having regular unimpressed series of punctures as in *carbonata*, except that the punctures are strong and conspicuous throughout the length, becoming fine only at the apex excepting in the sutural series, where they are strong to the tip; foveæ moderately distinct, the extero-basal rugulæ strong; anterior tarsi (♂) moderately broadly dilated. Length 24.0 mm.; width 9.7 mm. Arizona.

The division of the basal impressions of the pronotum, announced above, is exactly symmetric bilaterally, but it is nevertheless adventitious, in all probability, in the single male type; the species is distinct, however, by reason of the relatively broader anterior parts, stronger elytral punctures and smaller size. The anterior male tarsi are not quite so strongly dilated as in *carbonata*.

Calosoma hospes n. sp.—Small in size, stout, convex, shining, black throughout; head small, finely, not densely punctate and rugulose, three-fifths as wide as the prothorax, the antero-lateral impressions short; antennæ (♂) nearly half as long as the body; prothorax transverse, fully three-fourths wider than long, just visibly more than half as wide as the elytra, rounded at the sides, the latter slightly more convergent and straighter in basal two-fifths, sometimes feebly angulate at that point; surface very shining, finely, sparsely punctate and feebly rugulose,

more densely and strongly punctate and rugulose near the margins, more coarsely but sparsely basally; side margins not concave, feebly declivous to the abruptly elevated marginal bead, the lateral basal impressions broad and distinct; other impressions, except a fine and partial median stria, obsolete; base broadly arcuate, sinuate slightly near the angles; elytra short, a fourth (σ^7) to a third (φ) longer than wide, parallel, feebly arcuate at the sides; surface faintly alutaceous; punctures and anterior rugulæ as in *peregrinator*, the fine striæ rather more evident and the punctures less minute basally; tarsi very short, rather slender, the posterior but little more than three-fifths as long as the tibiæ, the anterior (σ^7) moderately dilated. Length 16.0-17.4 mm.; width 7.8-8.2 mm. California (Coronado, near San Diego).

For some years I considered this to be nothing more than a sea-coast modification of *parviceps*, but on closer examination this assumption proves to be untenable; the anterior tarsi of the male are slightly more dilated, the second joint being only about as wide as long in that species, while here it is decidedly wider than long and the hind tarsi are shorter, these being about three-fourths as long as the tibiæ in *parviceps*; again, the prothorax is much more transverse and the head in relation thereto still smaller, and the transverse elytral rugulæ are more lateral. It seems to be allied also to *eremicola* Fall, from San Clemente Island, but is materially smaller, the length of the latter being given as 17-19 mm., and with shorter elytra. The last ventral of the female is broadly subangulate and is not punctured.

The three species *sponsa*, *parviceps* and *hospes* constitute a peculiar group of the genus of the *peregrinator* type but minute in comparison; whether *eremicola* should be associated with them or not is uncertain.

In the *cancellata* group there are several distinct species hitherto uncharacterized; *ænescens* Lec., from northern Oregon, is however purely a synonym; it was compared under the original description with *tepida* and *calida* only, to which of course it is in no way closely allied. The two following belong to the fauna of extreme southern California:

Calosoma esuriens n. sp.—Body narrow, parallel and convex in form, somewhat shining, black, the elytra more polished and with the foveæ and side margins in part feebly metallic green; head large, rather finely, not densely punctate and rugulose; antennæ (φ) very short, picescent distally, distinctly shorter than the thoracic width; prothorax short, and very transverse, fully twice as wide as long and but very little nar-

rower than the widest part of the elytra, the sides rounded, moderately oblique posteriorly, the angles broadly rounded and slightly produced posteriorly; surface closely, not coarsely punctured, becoming densely rugose laterally, the basal impressions large and deep; elytra parallel, two-fifths longer than wide, sculptured as in *cancellata* but less deeply and a little more coarsely, the indications of striæ less evident; tarsi very short, the posterior barely two-thirds as long as the tibiæ. Length (♀) 17.0 mm.; width 7.4 mm. California (near San Diego),—Dunn.

Distinguishable at once from *cancellata*, which is more northern in distribution in California and Oregon, by its smaller size and narrower, more parallel form, much shorter antennæ and still shorter tarsi, by the relatively much broader prothorax, more parallel and more convex elytra and more evenly punctulate propleura.

Calosoma transversa n. sp.—Larger and much stouter but similar throughout in coloration, lustre and sculpture; head large; prothorax still shorter, a little more than twice as wide as long, the oblique sides posteriorly very much less converging, the lateral impressions much shallower; elytra broad, barely a third longer than wide, not parallel but much swollen behind the middle, where they are nearly a fourth wider than at base and two-fifths wider than the prothorax; surface less convex than in *esuriens* and still more feebly sculptured; tarsi longer than in either of those species, the posterior rather more than four-fifths as long as the tibiæ; antennæ rather short, not as long as in *cancellata*, though equal in length to the thoracic width. Length (♀) 20.0 mm.; width 8.8 mm. California (near San Diego),—Ricksecker.

Differs from the preceding in its much broader form, feebler sculpture and less convex, posteriorly inflated elytra, longer tarsi and antennæ and many other features, and, from *cancellata*, in the very much feebler sculpture, broader and more transverse, less posteriorly narrowed and more feebly impressed prothorax, among other differential characters.

Tristoides Fall, is so distinct from *tristis*, in its very much larger and stouter form, more convex, shining surface and fine punctures, that there is really no close relationship between them; in fact it would have been better to give it a more distinctive name. I have two examples, both females, from Arizona and southern California, in which the elytra are relatively shorter than in any of a good series of the typical coast form at hand; they probably represent a subspecies of *tristoides*. In this connection, attention ought to be called to a male and female of *semilævis* Lec., found at Alameda, where the normal form was also taken abundantly, which have the

prothorax narrower, parallel and feebly, evenly arcuate at the sides from apex to base, and not inflated and strongly rounded as in the normal form of the species; as there are but few other points of difference, I am uncertain as to the taxonomic meaning of this peculiarity, though it imparts a distinctly different facies to these two individuals. The genus *Calosoma*, when fully collected, will prove almost as troublesome to us as *Carabus* is to the European systematists.

Callisthenes Fisch.

We need only take a general glance at *Calosoma* and *Callisthenes* as a whole, to note a very perceptible difference in habitus extending consistently through both groups of species, and *Callisthenes* should therefore be retained for those Calosomids having oval elytra and broadly rounded humeri, generally signifying absence or great curtailment of the wings. But disregarding these external features, the genus is proved conclusively to be distinct because of antennal structure. It will be observed that the distal joints in *Calosoma* are virtually uniform in their dense pubescence, while in *Callisthenes* the outer joints are in great part glabrous on their flattened faces, the lines separating these glabrous spaces from the large pubescent areas being very sharply defined. The head is generally less developed than in *Calosoma*, and such forms as *moniliatus* Lec., which possess the three series of elytral elevations as in *Calosoma cancellata*, and the similarity to which in elytral sculpture may perhaps have given rise to doubts concerning the validity of *Callisthenes*, are not really allied to *cancellata* at all; they differ not only in the rounded humeri but in the very much smaller head, form of the basal part of the prothorax, which is exactly as in the *zimmermanni* group of *Callisthenes*, and in the distinctive antennal structure; furthermore, a closer examination will show that the elytral sculpture, between the rows of elevations, is wholly different from that of the *cancellata* group of *Calosoma*.

The species of *Callisthenes* are very numerous in the western parts of North America, but are unknown east of the Rocky Mountains to any considerable distance and they are particularly abundant in California. The following seem to be hitherto unnamed:

Callisthenes concinnus n. sp.—Oval, convex, rather more elongate

than usual, shining, black, the pronotum with feeble greenish glint laterally, the elytra bright æneous-green throughout, excepting the serial elevations, which are black; propleura faintly cupreous, with the small scattered asperate punctures bright green, these also greenish on the other sternal pleura; head small, with fine scattered punctures; antennæ extending to about basal fourth of the elytra; prothorax not quite twice as wide as long, almost twice as wide as the head and fully two-thirds as wide as the elytra, strongly rounded at the sides anteriorly, the sides thence strongly oblique and less rounded to the apices of the basal angles, which are narrowly rounded and much produced posteriorly; surface concave at the sides but only feebly impressed laterally at base, the median stria strong; punctures fine and sparse, densely rugulose laterally, more broadly at base; elytra oval, widest at the middle, not quite one-half longer than wide, the surface between the series of large oblong elevations evenly and asperately but not densely punctate and feebly elevated along the middle, the cancelli of the marginal series small and not black; foveæ separating the elevations large, shallow; legs slender; anterior tarsi (♂) narrowly dilated, the second joint rather longer than wide. Length (♂) 15.0 mm.; width 6.8 mm. Idaho (Priest Lake).

This species was sent to me under the name *moniliatus*, of which the *Carabus bicolor* of Walker is a synonym, but it evidently differs in the brighter metallic green coloration of the elytra, smaller size and much sparser sculpture of the head, prothorax and elytra; *moniliatus* is 16.5 mm. in length and is said to have a good deal the habitus of *Carabus serratus*, which would make its convexity very much less. It seems to resemble *laqueatus* Lec., from Saskatchewan, which is by no means a synonym of *moniliatus*, but apparently a distinct species, much more closely than it does the latter, but this is described as robust and nigro-æneous; its length is nearly 17 mm.

Callisthenes discors ssp. **inversus** nov.—Coloration, shining lustre and general characters exactly as in *discors*, but less obese and more oblong; head not quite so large but similar; prothorax similar throughout though a little shorter and more transverse, and, in relation to the elytra, very much wider; elytra oblong, with parallel and moderately rounded sides, having unimpressed series of strong deep subelongate punctures, the intervals flat, each with a series of small and well separated punctures. Length (♀) 17.5 mm.; width 8.6 mm. California (San Francisco).

The type is the only one discoverable among a good series of *discors* also taken at San Francisco; in outline it is quite different, the prothorax not barely two-thirds as wide as the elytra as in that species, but fully three-fourths as wide, and the oblong elytra, with much less rounded and less inflated sides, display a singular

reversal in the sculpture. In *discors* it will be observed that the punctures of the striæ are nearly always smaller than those of the intervals, or at any rate are never larger, while here the stria punctures are two or three times as large as those of the intervals, the latter being small and much shallower.

In the *arcuatus*—*dietzi* section there are many species in southern California; *latipennis* Horn, as remarked by Schaeffer, is not very closely allied, having more the facies of the *luxatus* group and need not be considered in the comparisons. In none of these species are the basal parts of the elytral margins in the least serrulate. In the description of *dietzi* (Journ. N. Y. Ent. Soc., 1904, p. 197), Mr. Schaeffer mentions some points that do not appear in any of those described below; for example, the margins are not bluish, as described of *dietzi*, except in *gravidulus*, and this differs wholly in the unrounded form of the thoracic angles and in its very small size; again, the author states that the elytra are but little wider than the widest part of the prothorax, which is eminently not true of any of those before me, and mentions certain punctures of the elytral intervals which are finer and sparser than those of the striæ; again *gravidulus* is the only one displaying any trace of punctures other than those of the series, excepting of course the very small foveæ; he further states that the sides of the prothorax become nearly straight posteriorly, which is not true of any described below, also that the mandibles are faintly rugose and finally that the length is 15–18 mm. and the width 7–8.5 mm. I think therefore that *dietzi* is not included among the following three species, although from the same part of the country; they all belong to the *discors* group of the genus.

Callisthenes tularensis n. sp.—Suboblong-oval, convex, black throughout, shining though faintly alutaceous, the margins concolorous, not in the least colored; head small, less than half as wide as the prothorax, very minutely and sparsely punctate, feebly rugulose laterally, the anterior impressions deep; labrum transversely and rugosely impressed, slightly emarginate medially; mandibles rather closely, irregularly strigose; antennæ (♀) as long as the thoracic width; prothorax about twice as wide as long, two-thirds as wide as the elytra, parallel, the sides very evenly arcuate from apex to base, the angles broadly rounded and slightly produced; surface convex, steeply declivous antero-laterally almost to the marginal bead and without gutter, this becoming deplanate and slightly expanding posteriorly behind about the middle,

the surface basally with a moderate impression at outer fifth, thence nearly flat to the angles, scarcely at all reflexed; surface with fine anastomosing creases, minutely, sparsely punctate, strongly but not densely punctate laterally; median stria distinct, subentire; elytra oblong-oval, a third longer than wide, slightly widest just behind the middle, from which point to the broad humeral rounding they are nearly straight; surface with unimpressed series of very fine and distant punctules, connected with very fine faint and irregular longitudinal and transverse scratches, the intervals vaguely and faintly subelevated by oblique light but without trace of punctuation, the foveæ of the three series very small; sides moderately reflexed and with coarse punctures and transverse rugulæ. Length (♀) 17.0 mm.; width 8.0 mm. California (Tulare Co.).

This is the form to which I alluded in describing *arcuatus* and thought to be *dietzi* by Mr. Schaeffer, but it is evidently not the same according to the description of that species.

Callisthenes opimus n. sp.—Much stouter and more ventricose, much more shining, deep black, smooth and convex, the margins not colored; head small though fully half as wide as the prothorax, nearly as in the preceding; mandibles closely, anastomosingly strigose; antennæ longer and more slender, longer than the thoracic width; prothorax slightly less than twice as wide as long, parallel and evenly rounded at the sides throughout, three-fifths to two-thirds as wide as the elytra, the angles as in the preceding; surface similarly sculptured but very differently impressed, rapidly declivous laterally, with a concave marginal gutter which is broad posteriorly, where the edge is much reflexed, gradually shallower and narrower anteriorly; basal impressions large and deep, divided transversely by a low feeble ridge in the female, somewhat after the manner so strongly developed in the type of *Calosoma apacheana*, the division not visible in the male; elytra evenly oblong-oval, with slightly less broadly rounded humeri than in *tularensis*, the sculpture nearly similar, except that the serial punctures are not so minute, perforate, the anastomosing scratches and feeble interstitial elevation obsolete, the foveæ very small, cupreous; side margins almost similar; tarsi slender, the posterior two-thirds as long as the tibiæ, a little longer in the male. Length 15.5–17.5 mm.; width 7.5–8.5 mm. California (Kern Co.),—Hopping.

Distinguishable at once from the preceding by its more corpulent form, more shining lustre, more evenly rounded sides of the elytra, more reflexed margins of the prothorax, longer antennæ and numerous other characters; it was received under the name *latipennis* Horn.

Callisthenes gravidulus n. sp.—Small, strongly convex, ventricose, alutaceous, black, the margins very faintly bluish; head rather more than half as wide as the prothorax, sculptured as in the preceding species, the mandibles more feebly strigose and less closely; antennæ much longer

than the thoracic width; prothorax not quite twice as wide as long, the sides almost evenly rounded, though perhaps a little more converging basally than apically, three-fourths as wide as the elytra; surface moderately convex, much less declivous laterally than in the two preceding, finely but strongly, rather closely and distinctly punctate and confusedly creased, becoming densely punctate and rugose laterally, feebly reflexed anteriorly, not at all so medially and flat, though sloping upward just visibly from the impression to the sides, at base, the bead distinct anteriorly, wholly disappearing at the middle and thence to the base forming an increasingly wide, flat and punctureless border; basal angles of unusual form, being but slightly obtuse though rather sharply angular, the inner side of the angle oblique and straight to the truncate median part of the base, the outer side forming a continuation of the lateral arcuation; elytra scarcely more than a fourth longer than wide, with only moderately rounded humeri; surface convex, rather dull, smooth, having very fine but continuous scratchlike striæ, which are slightly wavy but not punctate, the intervals each with a regular series of fine, not close-set punctures and some confused suboblique detached scratches; margins moderately reflexed, having a closer series of coarser graniferous punctures though scarcely at all rugose; legs rather long and slender; anterior tarsi (σ^7) moderately dilated, the second joint scarcely at all wider than long. Length (σ^7) 13.2 mm.; width 6.7 mm. California (Sequoia National Park, 4600', Tulare Co.).

The single type was sent to me by Mr. Hopping under the name *dietzi*; but the small size, conformation of the basal thoracic angles and peculiar elytral sculpture preclude any such association.

The *luxatus* group comprises numerous species, in general very well differentiated among themselves and having great diversity of form and sculpture; *latipennis* of Horn and the true *luxatus* are still wanting in my collection, and, in the following table, are interpolated as accurately as possible from the published descriptions. The erect setæ at the sides of the prothorax, conspicuous in some species, do not seem to have been noted heretofore.

Side margins of the elytra perfectly even.....	2
Side margins serrate basally.....	10
2—Elytra strongly sculptured.....	3
Elytra feebly sculptured, except very near the sides.....	8
3—Prothorax not at all reflexed at the sides, the marginal bead equal from apex to base, the basal angles very broadly rounded and only very slightly produced posteriorly. Body small, rather narrow, deep black; head with strong and moderately close punctures, becoming fine and sparse medially on the vertex and front, the lateral rugæ feeble; mandibles with very feeble sparse rugæ; antennæ as long as the head and prothorax, glabrous, the outer joints with a large outer and inner sharply limited area of dense punctulation	

and pubescence; prothorax small, three-fourths wider than the head, the sides strongly rounded near the apex, thence nearly straight and unusually oblique to the base; surface only very feebly but almost evenly convex to the lateral bead throughout the length, the impressions almost obsolete, the surface strongly and rather closely punctate, becoming still more strongly and densely punctured and rugose laterally, more broadly basally; sides apparently with a single seta near the middle; elytra oval, scarcely a third longer than wide and two-fifths wider than the prothorax, having contiguous series of large and feebly convex tegulæ, each having posteriorly a small asperate puncture, the tegulæ becoming smaller and more tuberculiform at the sides and toward apex. Length (σ^7) 15.0 mm.; width 6.8 mm. Oregon **zimmermanni** Lec.

Prothorax always more or less reflexed at the sides, although sometimes scarcely visibly, the basal angles more strongly rounded and distinctly produced posteriorly. 4

4—Elytra with equal close-set striæ and transverse grooves, forming subquadrate, almost evenly convex tegulæ, which do not become notably altered in form or tuberculiform near the sides. 5

Elytra with the transverse lines separating the tegulæ broader and arcuate, the tegulæ more pointed or asperate at their posterior ends and laterally becoming smaller, more widely separated and strongly tuberculiform. 6

5—Form stout, rather less convex, deep black, moderately shining; head larger, two-thirds as wide as the prothorax, having large and very obsolete rugæ and minute, very sparse punctures; mandibles feebly rugulose; antennæ rather short, nearly as in the preceding but much shorter than the head and prothorax, the latter very transverse, fully twice as wide as long, the sides broadly rounded, becoming moderately oblique and nearly straight in about basal half, the angles rather narrowly rounded and much produced; surface rather finely but strongly, closely punctate and rugulose, becoming rather deeply concave at the sides from base to apex and more densely, coarsely punctured and rugose, the impressions rather deep; elytra broadly oblong-oval, barely a fourth longer than wide, extremely narrowly reflexed at the sides, the tegulæ becoming smaller, much confused and graniform apically. Length (σ^7) 15.0 mm.; width 7.5 mm. Wyoming. **striatulus** Lec.

Form much less stout, with much smaller head and prothorax, deep black but more shining; head two-thirds as wide as the prothorax, with fine sparse punctures and very obsolete rugulation, more markedly punctate and rugulose laterally but not on the neck; mandibles arcuate, finely, not strongly strigose; antennæ much longer, extending nearly to basal fourth of the elytra (σ^7), a little shorter (φ); prothorax small, very much less transverse and more narrowed basally, barely two-thirds wider than long, the sides more strongly and more anteriorly rounded, very oblique and becoming straight to the base, the angles narrowly rounded and sharply produced; surface finely, sparsely punctate medially, the punctures very gradually becoming coarse, close and rugulose laterally and

- coarse basally and apically, broadly but not deeply reflexed at the sides, the impressions not distinct, being confined to the basal margin at the angles; elytra narrower, a third to two-fifths longer than wide, oval, convex, two-fifths wider than the prothorax, sculptured nearly as in the preceding but more strongly, the tegulæ more convex and more polished; flanks less declivous toward the acute lateral bead. Length 14.0–14.2 mm.; width 6.4–6.7 mm. California (Placer Co.), —Koebele. Three examples.....**exaratus** n. sp.
- 6—Tegulæ large, finely separated and nearly flat inwardly, becoming widely separated, small and prominent only on and toward the flanks and on the posterior declivity. Body stout, convex, dull, the elytra somewhat shining, deep black; head rather large, fully two-thirds as wide as the prothorax, finely, rather closely punctate, with a posteriorly arcuate transverse area from eye to eye, in which the punctures become larger and sparser; rugulosity near the eyes obsolete; antennæ rather short; mandibles obsoletely strigose, short, barely at all inwardly arcuate at tip; prothorax transverse, nearly twice as wide as long, the sides broadly rounded, oblique and nearly straight posteriorly, the angles evenly rounded, produced; surface nearly flat throughout, and everywhere rather finely, very closely and strongly punctured, a little more coarsely and rugosely laterally, the impressions obsolete, the side margins scarcely at all reflexed except moderately toward base; elytra oblong-oval, with rather evident though rounded humeri, a third longer than wide, one-half wider than the prothorax. Length (♀) 15.5 mm.; width 7.4 mm. California (locality not recorded in the Levette collection).
tegulatus n. sp.
- A—Similar but a little less stout, with notably smaller head, obsolete humeri, the sides being broadly rounded to the base and with longer and more slender tarsi, the posterior being three-fourths as long as the tibiæ, the second joint nearly two and one-half times as long as wide, instead of two-thirds the tibial length, with the second joint only twice as long as wide as is the case in *tegulatus*; the thoracic punctures are less close-set medially, and, toward the sides, become much coarser than they are in the preceding. Length (♀) 14.5 mm.; width 7.0 mm. California (from the same source as the preceding).....**viator** n. subsp.
- Tegulæ narrower, more convex and more separated internally, becoming small, widely isolated and sharply tuberculiform in fully external half of the elytra; sides of the prothorax with numerous long erect setæ.....7
- 7—Body obese, rather convex, deep grayish-black, dull in lustre; head moderately large, three-fifths as wide as the prothorax, moderately finely, strongly, closely punctate and feebly rugulose throughout, with a smoother median patch at the apex of the front; rugulation toward the eyes strong and dense; mandibles strongly arcuate from base to apex, the latter curved inward and acute, the strigæ strong and close but rather fine; antennæ nearly as long as the head and prothorax, the latter short and broad, nearly twice as wide as long and three-fourths (♂) as wide as the elytra, to a little less (♀),

the sides rounded, converging, becoming almost straight posteriorly; surface, somewhat finely but very deeply and closely punctate, broadly and densely rugose toward the sides, moderately convex, feebly declivous laterally to the sharply elevated marginal bead but not reflexed even basally, though the rather deep narrow impressions give somewhat this appearance, the basal angles rather broadly rounded and only very moderately produced; elytra short, oblong-oval, a fourth to third longer than wide, the humeri rather evident though very broadly rounded. Length 14.5-15.8 mm.; width 7.2-7.7 mm. Northern California. Vancouver Island—Walker..... *pimelioides* Walk.

Body narrower and more oblong in form, similar in coloration and lustre; head a little smaller, finely and sparsely punctate and covered throughout with vermicularly anastomosing incised lines, feebly rugose but not more punctate toward the eyes; mandibles almost similar, except that the strigæ are still finer and feebler; antennæ almost similar; prothorax not so broad, distinctly less than twice as wide as long, otherwise nearly similar, except that the basal angles are much more narrowly rounded and more produced posteriorly, the fine punctures medially much less close-set and the lateral rugosity less dense, the impressions and side margins similar; elytra more narrowly oval, two-fifths longer than wide, the humeri broadly rounded; side margins similarly opaque and still more narrowly reflexed; tarsi similarly moderately long, slender. Length (♂) 14.5 mm.; width 7.0 mm. California (Yreka),—Levette.

pustulosus n. sp.

8—Longitudinal and transverse lines of the elytra apparently about equally distinct. Body brownish-black, the elytra reticulate; head and prothorax minutely punctured; mandibles flattened above, rugose with oblique lines; prothorax minutely punctate, the punctures larger and confluent on the lateral margin, the posterior angles rounded, extending backward a little beyond the basal line; elytra suborbicular, reticulate, the "longitudinal lines not more dilated or profoundly impressed than the transverse ones, which are not continuous, the points of intersection not distinguished by a puncture;" three punctured series obsolete, their traces hardly discernible in a certain light and not differently colored. Length more than 15 mm. Inhabits Arkansas..... *luxatus* Say

Longitudinal lines of the elytra, except near the suture, more faint than the transverse lines..... 9

9—Form moderately stout, convex and shining, deep black; head three-fifths as wide as the prothorax, very finely and remotely punctulate, the antero-lateral impressions expanding very shallowly at the sides of the front and with some radiating rugulæ; mandibles rather short, thick, not bent inward much apically and very faintly strigose; seta near the eyes transversely doubled; prothorax rather large, barely three-fifths wider than long, the sides broadly rounded, converging and straighter behind, the angles rather narrowly rounded and well produced; surface minutely and remotely punctate, broadly, feebly reflexed and coarsely, sparsely rugose and punctate laterally,

the basal impressions small, basal and feeble; sides with short erect setæ, of which there is a sparse discal cluster near the hind angles; elytra oblong-oval, with rather distinct though rounded humeri, barely a third longer than wide, two-fifths wider than the prothorax, very narrowly reflexed at the sides, the tegulæ on the flanks becoming acutely asperate, especially so on the entire posterior slope. Length (♀) 16.0 mm.; width 7.8 mm. Nevada (banks of the Truckee River at Reno). Taken by the writer. *monticola* Csy.

Form more ventricose, with smaller prothorax, rather convex and shining, deep black; head nearly similar but less smooth, having some coarse anastomosing creases in addition to the fine remote punctures throughout; mandibles strongly arcuate, densely and strongly strigose, much produced inwardly and very acute at tip; prothorax shorter, fully three-fourths wider than long, the outline, angles and form of the surface nearly similar but with the sculpture throughout coarser and very coarsely and vermicularly rugose broadly toward base, differing greatly in having numerous very long slender erect setæ along the sides throughout the length, more linear in arrangement basally and not so clustered on the disk; elytra nearly two-fifths longer than wide, evenly oval, without humeri, the tegulæ on the flanks not differing materially from those on the upper part of the disk, except on the posterior slope, where they are close and tuberculiform, shining but not asperate as in the preceding. Length (♀) 16.0 mm.; width 7.9 mm. Nevada (near Reno),—Wickham.

nevadensis n. sp.

10—Body very convex and strongly ventricose, polished, deep black; head two-thirds as wide as the prothorax, very finely, sparsely punctate and with some deep anastomosing creases, the seta near the eyes single as in the preceding; labrum scarcely impressed or medially emarginate though punctate and setose transversely as usual; mandibles arcuate, densely, strongly and finely strigose, curved inward and acute at tip; antennæ moderate, the pubescent lateral areas meeting apically on the flattened sides of the distal joints; prothorax two-thirds wider than long, the sides broadly rounded, converging and becoming straight basally, the angles narrowly rounded, distinctly produced; surface evenly, rather strongly convex from side to side, narrowly but strongly reflexed at the sides, still more strongly basally, finely, sparsely punctate and with small but deep anastomosing creases, more coarsely but sparsely punctured apically and basally, and, laterally, more densely as well as coarsely, the basal impressions very feeble, apparently having but a single marginal seta near the middle; elytra oval, very convex, without distinct humeri, not a third longer than wide, very peculiarly sculptured, as though the transverse lines of the typical form of sculpture were abbreviated, the tegulæ very short, isolated, not definite though becoming broadly prominent at their hind margins, with all longitudinal impressed lines obsolete; the short, transversely asperate lines become much confused and sharply elevated posteriorly and on the flanks; side margins more broadly deplanate than in the preceding forms, the edge strongly serrulate

basally. Length (♀) 14.5 mm.; width 7.6 mm. New Mexico (Coolidge),—Wickham.....*diffRACTUS* n. sp.
 Body stout, black and shining; head rather small, sparsely punctured; prothorax broad, moderately convex, smooth, the median stria distinct, the sides coarsely punctured and wrinkled, rather broadly reflexed, the angles rather broadly rounded; elytra broadly oval, smooth and shining, having approximate striæ of very fine punctures; margins rather broad throughout, except at base, where they become narrower, rather densely, muricately punctured and usually of a greenish-bronze color; under surface almost entirely smooth and impunctured, the edge with three or four distinct serrations basally; male as broad as the female of *discors*. Length 14–17 mm. Southern Sierras of California.....*latipennis* Horn

Latipennis seems to combine some general structural features of the *luxatus* and *discors* groups of the genus, the elytral sculpture being as in the *arcuatus* section of the *discors* group, but it differs from both in the serrate elytral side margins toward base, this being another special character, besides cancellated elytral sculpture, well known in *Calosoma* and reappearing in *Callisthenes*. The elytral sculpture of *diffRACTUS* is remarkably different from any other known at present in the genus, because of the absence of longitudinal striæ and great prominence of the short transverse lines; the anterior serratures of the side margins are strong in this species.

Pasimachus Bon.

It is very long since this purely North American genus has been given any attention, even in the way of isolated descriptions and meanwhile the discoveries made by various collectors, chiefly in the Gulf regions and Sonoran provinces, have become rather numerous, so that a revision of all the known forms in a systematic way has become desirable from many points of view. I have endeavored to do this, so far as possible with the material in my collection, in the following tabular statement. Some of the characters used by LeConte in a very superficial sketch (Bull. Buf. Soc. Nat. Hist., 1874, p. 266) forming the last word on our species, do not seem to be of much decisive value, such for instance as the form of the spine of the middle tibiæ and the degree of basal thoracic constriction, and I have therefore merely made occasional use of the latter only. I am unable to identify *substriatus*, of Haldeman, described in very few words (Proc. Ac. Nat. Sci., Phila., I, p. 313) as black,

somewhat shining, the head with rather indistinct longitudinal impressions, the pronotum smooth, with the mesial line slightly impressed, a subtriangular impression near the external angle and another transverse medial one near the base, the elytra scarcely striate; 31 mm. long and from Long Island. There is scarcely a single character given that can help us in coming to a conclusion as to its relationships, but it is compared by its author with *sub-sulcatus* Say, the largest example of which, or of any of the related forms, before me measures only 22 mm. in length. It is given as a variety of *sublævis* by LeConte, but the largest example of this or related forms at hand is only about 26 mm. in length, and, while it may occur in Long Island, I have never seen an example from so high a latitude; it would be useless therefore to make further allusion to *substriatus* Hald. Omitting this I would propose the following arrangement of our numerous species and subspecies:

- Hind body short, generally but very little longer than wide.....2
 Hind body always evidently longer than wide.....8
 2—Elytra conjointly broadly and obtusely rounded behind; humeral carina very short; hind tibiæ with sparse hairs within in both sexes; form stout, parallel and very convex.....3
 Elytra obliquely and obtusely pointed behind.....5
 3—Hind tarsi short, much shorter than the tibiæ. Body oblong, convex, rather shining, deep black, the margins very faintly and scarcely visibly violaceous; head about two-thirds as wide as the prothorax, the two impressions distinct, the labrum narrowly trilobed, the middle lobe a little more advanced, rounded and smooth, the lateral obtusely dentiform, the lateral discal impressions deep, the two median diffuse; prothorax two-fifths wider than long, but little narrowed at base, the sides broadly rounding to the very obtuse but rather sharp basal angles, just before which there is a very small and feeble sinus, the marginal groove extending fully to and slightly inward from the basal angles; median stria rather strong, the sub-basal impressions moderate; scutellum wholly on the peduncle of the hind body, as usual in the genus; elytra just visibly longer than wide, having geminate series of distinct though shallow punctures, separated by lines of barely traceable convexity. Length 23.0–24.5 mm.; width 9.3–9.9 mm. Mississippi (Pass Christian). Two examples taken by the writer.....**brevitarsis** n. sp.
 Hind tarsi longer, as long as the tibiæ or very nearly.....4
 4—Form a little less abbreviated than the preceding, deep black, with violet side margins, shining, the elytra more or less strongly alutaceous or subopaculate; head similar, except that the apical part of the mandibles, which are similarly moderately strigose, is more slender and prolonged and the median lobe of the labrum more truncate; prothorax nearly similar but a little less transverse and even less

narrowed at base, differing decidedly in having the lateral groove broader and evanescent basally and the very obtuse basal angles much less sharp, in fact narrowly rounded; elytra with the longitudinal lines separating the geminate series much more convex and rather conspicuous, the two lateral ridges stronger than the others; they are together about a fifth longer than wide; tarsi as long as the tibiæ. Length 22.0–25.5 mm.; width 8.7–9.9 mm. Florida (Lake Worth and Key West). Five examples exhibiting no decided variability. [*rugosus* Lec.—an individual aberration having the basal impressions of the prothorax rugose].....**sublævis** Beauv.

- A—Similar but with the elytra, as well as pronotum, highly polished, the former with more rounded sides and rather less convex surface and with the longitudinal convex lines very feeble, the two lateral ridges also feeble but more evident than the others, the punctures wholly obsolete; head, labrum and prothorax throughout nearly as in *brevitarsis*, except that the mandibles are strongly strigose throughout their extent and not on the inner part only as is the case in the two preceding forms; hind tarsi as long as the tibiæ. Length 24.0 mm.; width 9.2 mm. Two similar examples, marked "R. B."**assimilis** Lec.

Form more subcylindric, deep black, with narrow violaceous margins, smooth and strongly shining throughout, rather more convex than any of the preceding; mandibles, labrum and prothorax nearly as in *brevitarsis*, the lateral lobes of the labrum still more pointed and dentiform, the median lobe similarly advanced and strongly rounded, the four setigerous foveæ distinct but small; mandibles with slender apices as in *sublævis* and similarly only partially strigose; elytra slightly longer than wide, having irregularly and broadly subgeminate series of very small or minute, sometimes completely obsolete, punctures, but without even evident traces of longitudinal lines of greater convexity, the two lateral ridges being sometimes just visible though also generally wholly obsolete; hind tarsi evidently shorter than the tibiæ but not approaching the brevity seen in *brevitarsis*. Length 22.5–26.5 mm.; width 9.0–10.5 mm. North Carolina (Southern Pines),—Manee. Four homogeneous examples.

oblongus n. sp.

- 5—Body very large and convex, the humeral carinæ very short. Form extremely stout, deep black and highly polished throughout, the lateral margins without trace of color; head very large, more than three-fourths as wide as the prothorax, the labrum short, transverse, very coarsely and deeply, longitudinally plicate throughout, the median part of the apex extremely broadly, feebly and evenly arcuate between the slightly more advanced and narrow, rounded lateral lobes, the two lateral punctures very small, the two medial minute at very near the apical margin; mandibles coarsely plicato-strigose but medially only; prothorax very transverse, not quite twice as wide as long, the sides rounded, becoming strongly convergent behind the middle and parallel for a short distance before the basal angles, which are right and sharp, the marginal groove continuing to the base and narrowly along the latter to outer fourth, the stria distinct, the

subbasal impressions large, shallow, prolonged obliquely nearly to the basal angles; elytra but just visibly longer than wide, the sides rounded, less so basally, the surface with widely separated geminate series of very small and feeble punctures, the wider separating lines broadly and very feebly convex, becoming gradually narrower and stronger laterally; hind tarsi about as long as the tibiæ. Length 34.0 mm.; width 14.0 mm. Florida—Levette collection.

strenuus Lec.

A—Similar but smaller, similar in form and in the shining lustre, the lateral margins faintly violaceous; head not quite so large proportionally, the mandibles similar, but the labrum differs decidedly, the middle lobe not plicato-strigose but smooth, much narrower, with its apex evenly and more strongly rounded and separated from the equally advanced lateral lobes by deep and narrow sinuosities, the small median punctures not so near the apex; prothorax nearly similar, except that the parallel part of the sides before the basal angles is very much shorter and differing very markedly in having the basal groove continuous throughout the entire width; elytra nearly similar in form but with the punctures of the geminate series much stronger and very distinct, the double series separated by rather strongly elevated ridges, which are as usual gradually feebler toward the suture; hind tarsi nearly similar though a little more slender. Length 29.5 mm.; width 12.4 mm. Florida. A single example from an unrecorded source.

robustus n. subsp.

Body less convex and very much smaller in size, the humeral carina long, evenly continuous with the inner lateral ridge. 6

6—Entire surface of the elytra deeply, coarsely, closely and almost evenly sulcate, the furrows equal in width to the ridges, slightly alutaceous and each with two series of fine and feeble punctures. Body subdepressed, elongate-oval, black with strong violaceous lustre throughout above, deep black beneath, the anterior parts having a faint violet-blue lustre; head very moderate, not three-fifths as wide as the prothorax, the two impressions distinct but narrow; mandibles smooth, with a few striations near the tooth; labrum nearly smooth, with two large excavations separating the three small lobes, the median lobe slightly the more advanced, smooth and arcuotruncate; prothorax nearly one-half wider than long, about as wide at base as at apex, the sides broadly rounded, very feebly sinuate toward the right basal angles, the unusually narrow marginal groove interrupted before the base, the groove along the basal margin entire but not quite attaining the basal angles; surface with strong median stria and four subbasal impressions, the inner elongate, the outer near the angles and small; elytra about a fourth longer than wide, the ridges subequal throughout the width, their black color and shining lustre contrasting with the pure violet and duller interspaces, the two lateral ridges not distinctly differentiated from the others, the third and fifth of which gradually become obsolete behind; posterior tarsi slender, about as long as the tibiæ. Length

20.0–22.0 mm.; width 8.4–8.8 mm. Florida (Palm Beach),—Kinzel. Six mutually similar individuals. **floridanus** n. sp.

Entire surface nearly smooth or with feeble obtuse ridges, the two outer ridges always much stronger than any of the others; color deep black above and beneath. 7

7—Elytra shining, very short, but just visibly longer than wide and only a little more than half as long as the body. Form rather broadly suboval, subdepressed, the lateral margins violaceous; head, mandibles and labrum nearly as in the preceding, except that the two excavations separating the lobes of the labrum are smaller; prothorax slightly shorter and more transverse, otherwise nearly similar, except that the marginal bead is more thickened basally, the angles more obtuse and blunt and the basal groove nearly interrupted submedially; elytra with broad and feebly convex, more or less faint costæ, separated by lines which are fine suturally but broader externally, with faint indications of double series of fine punctures, the two external ridges more abrupt and stronger; tarsi a little thicker than in *floridanus*, not quite as long as the tibiæ. Length 21.0 mm.; width 8.3–8.9 mm. Florida (locality not indicated and also in Marion Co.) **subsulcatus** Say

A—Similar to *subsulcatus* but still smoother and more polished, rather more narrowly suboval; margins black; head throughout nearly similar; prothorax less rounded at the sides and not at all sinuate before the subsimilar basal angles, nearly three-fourths wider than long, the marginal groove far from attaining the base, the surface broadly flattened toward the angles, the impressions moderate; basal groove entire but coming far from attaining the angles; lateral bead thick, much thickened posteriorly to the flattening near the angles; elytra similar in form, the ridges barely traceable, the external costæ evident but not strong except the inner basally; tarsi fully as long as the tibiæ. Length 19.5 mm.; width 8.5 mm. Florida (a single example from an unrecorded locality).

subnitens n. subsp.

Elytra opaque, a little longer, nearly a fourth longer than wide, much more than half as long as the body; margins, impressions of the head and prothorax and base of the latter faintly violaceous. Head nearly as in the preceding species, except that the median lobe of the labrum is relatively a little wider and the two median of the setigerous foveæ are rather behind than before the middle of the length; prothorax differing somewhat in form, less transverse and more rounded at the sides, the latter basally becoming much more sinuate, parallel and straight for a considerable distance before the angles, which are a little more than right but sharp, scarcely one-half wider than long; marginal bead much thickened basally, the groove almost attaining the base, the basal groove much interrupted, very fine medially; elytra almost perfectly smooth, the lines of very fine, well separated punctures widely separated, barely traceable and apparently single, the two outer ridges very evident but obtuse, the inner becoming gradually acutely elevated basally as usual; hind tarsi about as long

- as the tibiæ. Length 20.0 mm.; width 8.2 mm. Florida (a single example from an unrecorded locality).....**opacipennis** n. sp.
- 8—Humeral carina long; elytra at base gradually more broadly sloping outwardly at each side to the long carina, the punctures, when present, in geminate series.....9
- Humeral carina short; elytra at base sloping convexly and evenly or subevenly throughout the width to the basal margin; punctures, when evident, arranged in single widely separated series or in geminate series.....19
- 9—Elytra with alternating strong and feeble ridges throughout the width; sides of the prothorax broadly rounded to just before the basal angles, where there is a very short sinuation.....10
- Elytra having the surface even and without lateral ridges; sides of the prothorax varying in basal sinuosity; upper surface often rather strongly depressed (♂), a little more convex (♀).....11
- Elytra smooth to moderately costulate but always having two conspicuous lateral ridges; sides of the prothorax abruptly sinuate before the sharp basal angles though only for a very short distance...18
- 10—Body elongate-oval, rather depressed in both sexes, a little stouter and with more shining and more convex head and pronotum in the female, these being subopaque in the male, the elytra opaque in both sexes, with the ridges shining; head large, with deep and lineiform impressions, the mandibles partially strigose, rather more so in the female; labrum short, subtruncate, sparsely and longitudinally strigose, the strigæ often effaced medially, where the median lobe is very much broader than in the preceding groups and truncate or feebly bilobed; prothorax rather more than one-half wider than long, the base but little (♂), or not at all (♀), narrower than the apex, the sides broadly rounded; basal angles right, rounded (♀) or sharp (♂); lateral head narrow, only slightly thickened posteriorly and continuing to the base; lateral groove feebly violaceous, rather wide, still broader posteriorly but abruptly terminating some distance before the base, the four subbasal impressions distinct; stria strong, the basal groove irregular; surface depressed and opaque (♂), convex and polished (♀), elytra two-fifths longer than wide, nearly similar in the sexes, the intermediate ridges fine and faint, sometimes wholly obsolete, always abbreviated, the two lateral ridges sharper; lateral margin rather broadly concave, black or faintly violaceous; posterior tarsi (♂) long, much longer than the tibiæ, or (♀) much shorter and only four-fifths as long as the tibiæ. Length (♂ ♀) 27.0-30.0 mm.; width 10.0-11.0 mm. Florida. Five examples.

marginatus Fabr.

Body shorter and much stouter, with still greater sexual disparity, moderately convex (♂), much stouter and strongly convex (♀), opaque throughout in both sexes, the elytral ridges much feebler, the alternate ones less unequal and all, except the two marginal, alutaceous and not shining as they are in the preceding; head relatively not quite so large, less than three-fourths as wide as the prothorax, the impressions not so deep, the labrum and mandibles nearly similar, except that the middle lobe of the former is more

advanced and more rounded though similarly wide; prothorax nearly as in the preceding but more transverse and more convex and opaque in both sexes, much less depressed in the male; elytra much shorter and broader, more rounded at the sides, broader and more convex in the female, the lateral margins still more broadly concave and obscurely violaceous; hind tarsi (σ^7) very long, much longer than the tibiæ, which are without brush of hair, or (φ) shorter and thicker, not quite as long as the tibiæ. Length (σ^7) 28.0-29.0, (φ) 28.0-30.5 mm.; width (σ^7) 11.0-11.4, (φ) 11.7-12.5 mm. North Carolina (Southern Pines),—Manee. **crassus** n. sp.

11—Body broad and stout in outline. 12

Body much narrower and more elongate. 15

12—Sides of the prothorax moderately converging and feebly sinuate toward base, the angles acute and subabruptly slightly prominent (σ^7), or more obtuse and distinctly blunt (φ). Body broad, very moderately convex (σ^7), or much more distinctly so (φ), rather shining, deep black, smooth, with moderately wide blue lateral margins; head with distinct impressions, the labrum trilobed, the median lobe rather short and broad; mandibles smooth (σ^7) or partially strigose (φ); prothorax transverse, two-thirds wider than long, evidently narrower at base than at apex, the sides rather strongly rounded, moderately converging basally, the median pair of subbasal impressions distinct, the outer nearly obsolete, the stria fine, the marginal bead attaining the base; elytra two-fifths longer than wide, rounded broadly at the sides, gradually obliquely narrowed behind to the rather acute apex, the surface perfectly smooth, without trace of punctures, rather abruptly declivous at the sides to the moderately wide margins; posterior tarsi (σ^7) very long and slender, much longer than the tibiæ which are without internal brush of hairs, or (φ) shorter though slender and about as long as the tibiæ. Length 25.0-28.0 mm.; width 10.8-11.2 mm. Atlantic regions. [*complanatus* Gmel., *lavis* Lec.] Rather common. . . **depressus** Fabr.

A—Similar to *depressus* but a little narrower, having a similar blue lateral margin, the median lobe of the labrum more abruptly smooth at apex and more evidently bilobate, the mandibles smooth in both sexes or never with more than a few feeble striations near the tooth and then only visible in the female; prothorax evidently less transverse, the basal angles sharp and slightly everted in both sexes; posterior tarsi (σ^7) stouter, evidently longer than the tibiæ, or (φ) much shorter and more slender, very much shorter than the tibiæ. Length 27.5 mm.; width 10.8-11.0 mm. North Carolina (locality unrecorded). [*P. limb.* Zimm.—Bull. Buf. Soc. Nat. Hist., 1874, p. 271]. **limbatus** Zimm.

B—Similar to *depressus* but a little larger and notably stouter; head similarly rather large, the median lobe of the labrum short and rather broad, the mandibles feebly and partially striate in both sexes; prothorax similar but more transverse, about three-fourths wider than long, the basal angles right and rather sharp in both sexes; elytra similar but a little more convex and not complete

impunctate as in the two preceding, but with broadly subgeminata series of very fine punctures, generally distinct but sometimes becoming obsolete; tarsi not quite so elongate, with the same sexual differences; lateral margins rather broadly bright violet, not at all blue. Length 25.5-29.5 mm.; width 10.0-12.2 mm.

North Carolina (Southern Pines),—Manee . . *carolinensis* n. subsp.

Sides of the prothorax and general features nearly as in *depressus* but a little smaller, not quite so stout, somewhat more convex and more polished black, the head nearly similar, the mandibles as in *depressus*, the labrum nearly similar; prothorax much shorter, four-fifths wider than long, the subbasal impressions shorter and deeper, the more lateral wholly wanting, with the surface even and convex; elytra distinctly narrower and more convex, impunctate though with feeble vestiges of costæ, which become wholly obsolete laterally; hind tarsi in the type slender, fully as long as the tibiæ or a little longer; lateral margins more deeply concave, violet in color. Length 26.5 mm.; width 10.4 mm. Pennsylvania (Carlisle Junction),—A. B. Champlain. A single example, probably male. . . *champlainsi* n. sp.

Sides of the prothorax more converging posteriorly, becoming strongly sinuous, so that the sides are parallel for a considerable distance from the angles. 13

13—Elytra without trace of serial punctures, the lateral margins black. Surface shining, the form narrower than in *depressus* or its related forms; mandibles perfectly smooth, the labrum transversely truncate throughout the width, with scarcely a trace of lobation; lineiform depressions of the head rather broadly impressed; prothorax one-half wider than long, the lateral groove deeply attaining the basal angles, the basal groove strong, equal and entire, attaining the angles; stria fine, the middle pair of subbasal impressions alone visible and rather feeble; elytra oval, with rounded sides, two-fifths longer than wide; hind tarsi in example at hand slender, about as long as the tibiæ. Length 26.0 mm.; width 10.0 mm. North Carolina (Asheville). A single specimen apparently but not certainly male, taken by the writer. *morio* Lec.

Elytra with geminate series of punctures, the side margins colored. . . 14

14—Body large, shining and much depressed, more so than in *depressus*, rather less depressed in the female as usual, the hind tibiæ (♂) with a large internal brush of dense hairs at apex, deep black, with broad and strongly violet concave side margins; head much larger than in *depressus* or allies, the two impressions deep, the mandibles (♂) partially strigose, with unusually long slender part beyond the tooth, or (♀) smaller, with shorter apical part and strigose almost throughout; labrum with very broad and feeble median lobe; prothorax one-half wider than long, the lateral groove lost at base in a large depression extending from the subbasal median impressions toward the basal angles, the stria fine; basal groove nearly entire, lost at the angles; elytra formed nearly as in *depressus* but still broader and more rounded at the sides, the punctures of the series extremely fine and rather widely spaced but apparently always visible; hind tarsi (♂) rather slender, almost as long as the tibiæ, or (♀) a little stouter and

distinctly shorter. Length 29.0–32.0 mm.; width 11.5–12.4 mm. Indiana. Three examples from the Levette collection.

punctulatus Hald.

Body much less inflated and relatively less depressed, shining, deep black, the side margins rather narrower, violaceous; head relatively smaller, the mandibles smooth in the type, the terminal part of the left slender, moderate in length, of the right broader and more gradually acuminate; median lobe of the labrum broad, evenly rounded, the lateral lobes obsolete and with the edge transverse; impressions of the vertex strong; prothorax not quite one-half wider than long, much narrower at base than at apex and relatively narrower at base than in the preceding, the sides parallel for a long distance from the distinct and right basal angles; grooves and impressions nearly as in *morio*; elytra narrower and less rounded at the sides than in the preceding, the series geminate only internally, equally but similarly closely spaced externally, the punctures well spaced in the series and rather large and strongly impressed, conspicuous, the humeral carina feebly prolonged in a slightly more evident line at the upper limit of the flanks but without trace of a more lateral ridge; series of granuliferous setigerous punctures of the concave side margins unusually strong and close-set; hind tarsi in the type only moderately slender and about as long as the tibiæ, the latter without brush of hair internally. Length 28.0 mm.; width 10.7 mm. Missouri (St. Louis). A single example of undetermined sex, though probably male, was taken by the writer in the suburbs. *sinuatus* n. sp.

15—Sides of the prothorax very moderately converging posteriorly, and, toward the angles, becoming only very broadly and feebly sinuate, the angles however sharply marked. 16

Sides of the prothorax strongly converging posteriorly, with a long strong basal sinus, the sides becoming straight and parallel for a considerable distance before the angles, which are right and sharply marked. . 17

16—Form elongate, suboval, moderately convex, nearly similar in the sexes, except that the female has the elytra slightly more elongate and more parallel toward base, deep black, shining, the margins bluish-violaceous and rather wide; head large, three-fourths as wide as the prothorax, the mandibles well developed, finely strigose, partially (♂) or almost wholly (♀), the former having the slender apical part a little more prolonged; labrum with a rather broad, rounded or feebly bilobate median lobe; linear impressions deep; prothorax barely one-half wider than long, the base much narrower than the apex; marginal and basal grooves not quite attaining the angles, the basal strong and even; single pair of subbasal impressions distinct; elytra oval, with rounded sides (♂), oblong-oval (♀), smooth, only rarely exhibiting geminate series of very small and feeble punctures; tarsi (♂) long, distinctly longer than the tibiæ, which are densely pubescent within apically, or (♀) a little more slender, much shorter and subequal in length to the tibiæ, which have fewer bristling hairs within apically. Length 26.0–28.5 mm.;

- width 9.5-10.0 mm. Iowa (Keokuk), Missouri (St. Louis), Kansas and Oklahoma. Abundant.....**elongatus** Lec.
- Form more abbreviated and more convex, smaller in size, similarly deep black and strongly shining, the margins narrower, and, on the elytra, less concave and black tinted with very faint violaceous; head and mandibles relatively smaller; median lobe of the labrum broad but much less rounded, the flanking sinuses much less evident; mandibles finely and only partially strigose; prothorax much shorter, two-thirds wider than long, convex, the grooves similar, the two subbasal impressions deeper and more lineiform; elytra oblong-oval, shorter, two-fifths longer than wide, rather strongly convex, very smooth though with traces of series of minute and widely spaced punctures posteriorly; hind tarsi (♀) evidently shorter than the tibiae. Length 24.5 mm.; width 9.3 mm. Arizona. A single female example from the Levette collection.....**pimalis** n. sp.
- 17—Body smaller and still narrower than in *elongatus*, rather shining, black, with wide and bright violaceous side margins; head relatively large, nearly four-fifths as wide as the prothorax, the mandibles moderate, having a few medial strigæ, the middle lobe of the labrum broad, broadly subtruncate, not advanced beyond the sides, the sinuses moderate; impressions strong as usual; prothorax not quite one-half wider than long, the base evidently though not greatly narrower than the apex, the marginal and basal grooves coarse, entire and attaining the angles, the stria and two subbasal impressions rather deep; elytra oblong-oval, rather more than two-fifths longer than wide, the sides moderately rounded; surface perfectly even but with geminate series of fine and widely spaced but evident punctures, in large part obsolete before the middle; long humeral carina strongly flexed outward at base as usual in this section; hind tarsi (♂) moderately slender, much longer than the tibiae, which have a short brush of very coarse hairs within apically. Length 23.5 mm.; width 9.0 mm. Nebraska. A single male.....**angustulus** n. sp.
- A—Nearly similar but a little less slender and with relatively still larger head, which is otherwise nearly similar throughout; violet margins similarly broad and conspicuous; prothorax nearly similar throughout though a trifle less transverse; elytra similar but a little broader and slightly more convex, smooth, without evident trace of punctuation but having fine and extremely obsolete longitudinal elevated lines, the one forming the prolongation of the long humeral carina very evident though feeble to the apical declivity; hind tarsi (♂) much longer than the tibiae, the latter with a long brush of close stiff hairs within apically, nearly as in *elongatus*. Length 25.0 mm.; width 9.4 mm. A single male, without indication of locality, from the Levette collection, probably collected in Colorado.....**evanescens** n. subsp.
- Body still narrower and with much more oval, laterally rounded elytra, very moderately convex, the surface of deeper and more glossy black; elytral side margins narrower and black; head well developed though barely three-fourths as wide as the prothorax, the impressions and mandibles as in the preceding but with the labrum decidedly

different, the median lobe not so broad, tumid, more abruptly formed and slightly more advanced, arcuato-truncate; prothorax smaller, fully one-half wider than long, the grooves entire, the marginal broad, the two impressions feebler than usual; elytra oval, with arcuate sides to the base, nearly one-half longer than wide, the surface smooth, with barely a trace of minute punctulation at any part though with irregular polygons of very fine lines, as in many other forms; hind tarsi (σ^7) evidently longer than the tibiæ, which have a moderate brush of stiff testaceous hairs internally at apex. Length 23.5 mm.; width 9.0 mm. New Mexico (Las Vegas),—Meeske. A single male example. **vegasensis** n. sp.

Body similarly decidedly narrow though still more depressed, and with the upper surface so highly polished as to appear varnished, deep black, the side margins rather narrow and with an extremely faint bluish-violaceous bloom; head and mandibles as in the preceding, the labrum different, the median lobe very broad, nearly half as wide as the labrum, not tumid, very evenly and feebly arcuate at its broad apex, not more advanced than the sides, from which it is separated by distinct though rather narrow sinuses; prothorax as in *vegasensis*, much narrower at base than at apex, scarcely one-half wider than long, the grooves nearly similar, the impressions a little larger and stronger; elytra elongate-oval, with evenly arcuate sides to the base, the surface very smooth, with barely a trace of geminate series apically; hind tarsi (σ^7) barely at all longer than the tibiæ, which have the usual internal brush of hairs characterizing the males of the *elongatus* group. Length 26.0 mm.; width 9.0 mm. Kansas. A single male. **vernificatus** n. sp.

18—Form moderately stout, oblong-oval, strongly convex, shining, black, the side margins black and unusually narrow; head moderately large, the impressions deep, the mandibles (σ^7) sparsely strigose but only from the tooth to the base; labrum with the median lobe strongly tumid, smooth, only moderately broad, rounded; prothorax not quite one-half wider than long, very much narrower at base than at apex, the lateral and basal grooves uniting at the angles, the sides evenly arcuate; subbasal impressions widely separated, moderate; elytra oblong-oval, rather blunt at apex, two-fifths longer than wide, the sides parallel and feebly arcuate, rounding basally and apically, equal in width to the prothorax as usual, convex, the surface with geminate series of feeble punctures, obsolescent suturally, stronger laterally, the double series separated by lines scarcely visibly elevated inwardly but distinct laterally, the two at the summit of the flanks abruptly strong and conspicuous, confluent at the end of the long humeral carina; hind tarsi (σ^7) about as long as the tibiæ. Length 25.0 mm.; width 9.0 mm. Kansas (Dodge City),—Knaus. **duplicatus** Lec.

Form much stouter, larger in size, rather more alutaceous, deep black, the margins similarly narrow and black; head relatively smaller, two-thirds as wide as the prothorax, the mandibles and labrum nearly similar; prothorax larger and more transverse, convex, three-fifths wider than long, the impressions and grooves nearly similar; elytra

- broader but of similar oblong-oval parallel obtuse form and convex surface, perfectly smooth throughout and with scarcely a trace of sculpture, except the two lateral ridges, which are often as pronounced and conspicuous as in *duplicatus*, the inner sometimes less elevated; hind tarsi (σ^7) notably thick, rather longer than the tibiæ, which have numerous stiff pallid hairs internally and especially toward tip, or (φ) much more slender though but little shorter and barely as long as the tibiæ. Length 26.0–27.5 mm.; width 10.2–10.3 mm. Texas. **costifer** Lec.
- 19—Body very stout, convex, large in size, deep black, rather shining, very seldom with evident colored margins; hind tibiæ (σ^7) with a more or less dense brush of hairs internally at apex. 20
- Body much narrower, smaller in size, the hind tibiæ (σ^7) never much more conspicuously pubescent within. 23
- 20—General outline somewhat as in *depressus*, the elytra normally elongate, the antennæ rather long as usual. 21
- General outline much more abbreviated, the elytra unusually short for this section of the genus, between a third and fourth longer than wide; antennæ short, the outer joints but little longer than wide. . 22
- 21—Elytra oblong-oval, the sides less rounded; head very large, the labrum trilobed, the median lobe slightly the widest; mandibles (σ^7) only partially strigose, the apical part slender, moderately prolonged; impressions deep and long; prothorax fully one-half wider than long, widest near apical third, the rounded sides moderately converging posteriorly, becoming broadly sinuate basally and straight for a moderate distance before the right and sharp angles; base evidently but not greatly narrower than the apex, the marginal groove rather narrow, not attaining the base, the basal groove strong, subentire, the impressions rather strong, partially uniting with a smaller impression near the basal angles; elytra two-fifths longer than wide, the margin rather narrower than in *impressus*, black; surface even and with geminate series of rather strong, very distinct, impressed punctures; hind tarsi (σ^7) rather stout, distinctly shorter than the tibiæ, which have the coarse hairs of the internal apical brush dense and fulvous. Length 32.5 mm.; width 13.0 mm. Texas.
- californicus** Chaud.
- A—Similar but rather more shining, the strigation of the mandibles finer and less close; margins black; prothorax a little more transverse, three-fifths wider than long, otherwise similar, except that the subbasal impressions are very feeble; elytra similar in form but wholly impunctate; hind tarsi (σ^7) longer, fully as long as the tibiæ, the internal brush of which is black or blackish in color and not fulvous. Length 30.5 mm.; width 12.5 mm. Texas (El Paso),—Dunn. **transversus** n. subsp.
- B—Rather narrower and more parallel than either of the preceding, the mandibles (σ^7) closely strigose, becoming smooth apically, probably wholly strigose in the female; prothorax less transverse, barely one-half wider than long, of the same general form and with the impressions nearly as strong as in *californicus*; elytra less rounded at the sides and with still narrower margin, impunctate,

less convex than in either of the preceding, the margins black, with the faintest possible bluish tinge; hind tarsi (σ^7) still longer, evidently longer than the tibiæ, the brush of hair fulvous as in *californicus*. Length 30.5 mm.; width 11.7 mm. Texas.

validus Lec.

Elytra broadly oval, more rounded at the sides, the margins throughout wider, as in *depressus* and bright violaceous-blue; head very large, the mandibles and labrum as in *californicus*, the median lobe of the latter a little more truncate or feebly bilobate; prothorax one-half wider than long, of different form, being more narrowed toward base and widest but little before the middle, the base much narrower than the apex; lateral and basal grooves attaining the angles, which are right and very sharp, the sides parallel near them for a moderate distance; impressions deep, strongly united with the impressions near the angles and also prolonged inwardly somewhat; elytra evenly oval, only moderately convex, smooth and impunctate; hind tarsi (σ^7) long and stout, much longer than the tibiæ, the dense inner brush of the latter pale fulvous. Length 31.5 mm.; width 12.0 mm. Texas (locality unrecorded).....*cephalotes* n. sp.

Elytra as in the preceding but somewhat more narrowed basally, much smaller in size, deep black, the margins without the faintest indication of color and narrow as in *validus*, the pronotal margin even narrower; head smaller than in any of the four preceding, scarcely three-fourths as wide as the prothorax; antennæ (φ) much shorter, the mandibles strigose throughout; prothorax one-half wider than long, widest near apical third, the sides sinuate basally to the right and very sharp basal angles, the lateral and basal grooves entire, attaining the angles; impressions deep, the juxtangular very faint; elytra oval, with rounded sides, sensibly wider than the prothorax, the surface smooth, even and impunctate; legs rather short. Length 24.5 mm.; width 10.2 mm. New Mexico (Jemez Springs). A single female, sent by Mr. John Woodgate.....*acomanus* n. sp.

22—Form stout, convex, shining, deep black throughout, the side margins narrow, not at all tinted; head moderate, smaller than in the preceding group but otherwise similar, except that the antennæ are much shorter in both sexes; mandibles partially strigose; prothorax shorter, two-thirds wider than long, the base but little narrower than the apex; sides moderately converging behind, becoming broadly and rather feebly sinuate to the basal angles, which are right and sharp; marginal and basal grooves entire, attaining the angles, the impressions moderate or rather shallow, the stria well impressed; elytra a little wider than the prothorax, broadly oval, with rounded sides, the surface even, having geminate series of distinct punctures (φ), to smooth and punctureless (σ^7); hind tarsi (σ^7) about as long as the tibiæ, the brush of hairs of the latter rather short and stiff, pale fulvous and not very dense, much less developed than in the preceding group, or (φ) a little more slender though about as long as the tibiæ, the legs a little shorter than in the male. Length 25.5-27.5 mm.; width 10.6-11.3 mm. Texas (locality unrecorded).....*corpulentus* Lec.

- Form stout but a little more elongate, similar in color and lustre; head and labrum nearly similar; mandibles very different, not much shorter than the median line of the head, as they are in both sexes of *corpulentus*, but very much longer, as long as the head and covered throughout, except the extreme point, with a dense system of peculiarly anastomosing and very deep strigæ on the left, but with much more separated and less extended strigæ on the right, mandible, the tooth-like inner prominence just beyond the large medial tooth strong and conspicuous, a little larger on the right than on the left mandible; prothorax much less transverse, rather less than one-half wider than long, the sinus at base more distinct, the angles less than right, sharp and somewhat everted; grooves and sulci almost similar; elytra slightly less abbreviated, nearly a third longer than wide, almost perfectly smooth and even, the concave side margin narrow; hind tarsi (σ^7) as long as the tibiæ, the internal brush of the latter rather short and only moderately dense. Length (excluding mandibles) 28.0 mm.; width 11.7 mm.; length of mandibles 5.0 mm. Arizona (probably southern)..... **obesus** n. sp.
- 23—Humeral carina short but not descending, its form as in the *californicus* group preceding; body moderately convex, deep black, shining, the lateral margins always black, the concave side margins of the elytra unusually narrow; hind tarsi rather stout, about equal in length to the tibiæ in both sexes, the tibiæ without any evident internal brush in the male; punctures when present in single series, except near the sides, where they become more or less evidently geminate.....24
- Humeral carinæ excessively short, descending to the basal margin; lateral margins broader, colored; general habitus widely diverse..26
- 24—Sides of the prothorax converging posteriorly but with the basal sinus rather feeble and short; elytra more gradually acuminate and prolonged apically. Body small, narrowly elongate-oval, rather convex; head rather small, the impressions linear, deep, the median lobe of the labrum narrow, tumid, smooth and strongly rounded; mandibles very moderate, the left rather closely, the right more sparsely and restrictedly, strigose; prothorax fully one-half wider than long, the base evidently but not greatly narrower than the apex; marginal bead much thicker basally, the groove and basal furrow entire, attaining the angles, which are right, the impressions small but deep; elytra nearly one-half longer than wide, oval, subequal in width to the prothorax, the sides broadly rounded, not more converging basally, the surface smooth and impunctate, even throughout, except that there are a few feebly raised lines, more visible apically but not externally. Length 22.0 mm.; width 9.0 mm. A single example, without indication of locality, from the Levette collection and probably taken in Colorado. .**acuminatus** n. sp.
- Sides of the prothorax more converging posteriorly, the base narrower, evidently narrower than the apex, the sinus longer and stronger, the sides parallel and either straight or sinuate for some distance before the basal angles; elytra more obtusely and rapidly pointed behind.....25

25—Form moderately stout, rather convex, the side margins narrow; head very moderate in size, the mandibles rather small, partially strigilate, the labrum as in *acuminatus* and the two following; impressions moderate; prothorax a little more than one-half wider than long, the base evidently but not at all pronouncedly narrower than the apex, the grooves entire, uniting at the sharply right angles, the impressions deep, linear; elytra equal in width to the prothorax, fully two-fifths longer than wide, moderately acuminate at tip, very narrowly margined; surface with widely spaced and slightly impressed single striæ of distinct punctures, with a strong lateral ridge in prolongation of the humeral carina and another near and immediately exterior to it equally pronounced, both extending to the apical declivity, also, just within the principal ridge, a wide and feeble ridge separating the two outer dorsal series of punctures, which are irregularly somewhat geminate. Length 22.0 mm.; width 8.5 mm. Colorado. **obsoletus** Lec.

Form stouter, similarly black, shining, with very narrow side margins and evidently larger head, the mandibles moderate and having only a few strigæ; labrum similar; impressions broader and deeper; antennæ notably more elongate; prothorax still more transverse, three-fifths wider than long, the grooves nearly similar, the impressions short, linear and deep, the small juxtangular impression deep, wholly disconnected from the median pair as in *obsoletus*; elytra broader, convex, smooth and even, having very faint and widely spaced single series of obsolescent punctures, which become geminate laterally and having barely a trace of the strong lateral ridges of *obsoletus*; in some specimens even these vestigial series of punctures are wholly invisible, the surface very smooth and even throughout. Length 22.5 mm.; width 8.8–9.0 mm. New Mexico,—F. H. Snow; Texas (El Paso—Dunn and Marfa—Wickham). . . **vestigialis** n. sp.

Form more elongate, much larger in size, the head still larger, the side margins scarcely at all less narrow; mandibles moderate, in great part strigose (♀), or with only a small area of oblique strigæ near the middle (♂); impressions similar; antennæ rather long, much shorter in the female; prothorax less transverse, barely one-half wider than long, the grooves and impressions nearly similar, the median pair of the latter more dilated inwardly at their posterior ends; elytra more elongate, nearly one-half longer than wide, even and very smooth throughout, seldom with the faintest trace of punctulation at any point; legs (♂) moderately long, the tarsi very nearly as long as the tibiæ and rather stout, the tibiæ with only about ten widely spaced stiff hairs within, or (♀) distinctly shorter throughout, the members similarly proportioned and the bristling hairs similar. Length 23.0–25.0 mm.; width 9.3–9.8 mm. Arizona (San Bernardino Ranch and Douglas, Cochise Co.; also from an unrecorded part of the state). A good series of six specimens, very homogeneous among themselves. **atronitens** n. sp.

26—Form rather depressed, elongate, black, shining; prothorax with the lateral and basal margins bright brassy-green, shorter than wide, the sides rounded and narrowly margined posteriorly, very briefly

sinuate, the basal angles small and right; elytra subplanate, subovate, posteriorly subacute, with geminate series of punctures, the lateral and basal margins bright brassy-green, the margin more reflexed toward base; humeral carina excessively short, almost wanting; posterior tarsi not at all longer than the tibiæ. Length 27 mm. Mexico (Sonora),—Schott. A single example.

**viridans* Lec.

A—Form very elongate-oval and more depressed than in any of our other species of the genus, black, moderately shining to subopaque or very strongly alutaceous throughout above; margins of the prothorax and elytra as in *viridans* but bright emerald green, not at all brassy, the broad basal green fascia of the elytra widely interrupted medially; head moderately large, the impressions long, deep, the middle lobe of the labrum prominent and truncate, the mandibles as long as the median line of the head, partially strigose, the left the more strongly and closely strigate, differing but little sexually, the right with a small tooth beyond the large one, which is wholly wanting on the left mandible; prothorax one-half wider than long, much narrower at base than at apex but less so in the female, only very feebly convex, the sides almost evenly rounded, with a small abrupt sinus at the very sharp and right basal angles; base almost transversely truncate, the groove fine; impressions very feeble; elytra elongate, fully one-half longer than wide, oval, moderately acuminate, the reflexed margin rather wide, only feebly concave; surface throughout smooth, without vestige of punctuation; hind tarsi (σ^7) very long, much longer than the tibiæ, the latter with a moderate brush of hair within, or (φ) much shorter though a little longer than the tibiæ. Length (excluding mandibles) 25.5–26.0 mm.; width 9.8–10.2 mm. Arizona. Levette collection. Four homogeneous examples.

ambiens n. subsp.

Form still narrower and very convex, extremely smooth and polished, with rather narrow purplish side margins; head rather small, nearly as in *ambiens* throughout, except that the mandibles are shorter and more strongly and almost completely strigose; antennæ short in the type, which is apparently female; prothorax only two-fifths wider than long, the sides parallel and rather feebly arcuate in anterior two-thirds, then converging to the very short basal sinus, the angles right and very sharp; lateral groove narrow, not attaining the angles, the basal groove of all the other species wholly wanting; two subbasal impressions rather feeble, the stria strong; elytra elongate-oval, rather acuminate, equal in width to the prothorax, the sides broadly and evenly arcuate; concave margins narrow, broader basally, having the usual row of setigerous punctures; surface convex, very deeply and rapidly declivous at the sides, feebly concave along the suture, extremely smooth and glossy but with widely spaced series of fine and very feeble punctures, the series geminate laterally; humeral carina almost wanting; hind tarsi in the type rather stout, somewhat longer than the tibiæ, the legs rather

short. Length 23.0 mm.; width 8.7 mm. Mexico (Colonia Garcia, Chihuahua),—C. H. T. Townsend.....***perpolitus** n. sp.

The form identified above as *assimilis* Lec., is decidedly distinct from *sublævis* in many ways and may be of specific value. *Robustus* is almost certainly a true species, differing from *strenuus*, not only in its smaller size, relatively smaller head and strong elytral sculpture, but in the form of the labrum and basal groove of the prothorax, both to a rather radical degree and also in its somewhat shorter tarsi; but it is left as a subspecies because the comparison has been made between single specimens, some of the characters mentioned perhaps being inconstant, though it is only fair to say that where large series are at hand of any particular species, no great inconstancy is evident. My two examples representing *subsulcatus* Say, differ somewhat; the one from Marion Co., is distinctly narrower than the one assumed to be typical and has much more obsolescent elytral sculpture, this alone being rather indecisive perhaps, but the pronotum is not so flattened near the angles, the lateral bead continuing visibly to the latter. In the former specimen the four large setigerous foveæ of the labrum are all strong, distinct and equal among themselves; in the latter, however, there is no trace whatever of the lateral foveæ and the median ones are very small and more advanced in position; the median lobe also is less strongly rounded. No definite conclusion can be formulated from such a character based upon single specimens however, and some others of the labral features mentioned would appear to be individually aberrational; they would be most surprising if confirmed by series.

The species of the *marginatus* group are peculiar in the marked sexual disparity in outline and convexity of the body, this being visible also, though to a slighter degree, in the *depressus* group. *Pimalis* is quite distinct from *elongatus* in its small mandibles, short prothorax and other features, but the four forms *angustulus*, *evanescens*, *vegasensis* and *verniscatus* are more closely allied, and, although easily differentiated on sight and differing in the structure of the labrum, form of the elytra and other characters, are of rather indeterminate status at present. Although the first two might be considered provisionally as subspecies of *elongatus*, I should be inclined to consider the last two both as fully valid species. There

seems to be a real and constant difference in the lateral contour of the prothorax toward the basal angles between all four of them and *elongatus*.

Duplicatus and *costifer*, as shown by the convex and obtuse form of body, peculiar outline of the prothorax, narrow side margins and twin lateral carinæ of the elytra—as well as the long humeral carinæ of the *depressus* and *elongatus* groups distinguishing them from any of the *obsoletus* group,—form a natural and isolated division of the genus; they differ from each other specifically and are not related subspecifically, as very conservatively maintained by LeConte in later years.

The El Paso male and Marfa female, which I have placed provisionally with the type of *vestigialis*, are probably different, forming at least a subspecies; they do not have a trace of the faint lines of punctures seen in the New Mexican type, taken by Prof. Snow, and are a little more convex. I am also of the opinion that the two very smooth and impunctate examples, placed above with the rather conspicuously punctate two typical specimens of *corpulentus*, represent a closely allied but different taxonomic form. Larger series are desirable however.

Viridans Lec., was said by the author (l. c.) to be a variety of *mexicanus*, but this was contradicted by Bates in the "Biologia." The form described above under the name *ambiens*, differs markedly from *viridans* in sculpture, as well as some other characters, and may be more than subspecifically different, for species in this group having brilliant green margins, are probably not limited to *mexicanus* and *viridans* alone, although the peculiar coloration is of a highly specialized type in the genus.

The left mandible is nearly always more strigose than the right in this genus and the strigosity is limited to a smaller area in the male than in the female; there are also other singular sexual differences hitherto unobserved, mentioned above in several instances, such as the general convexity of the upper surface in the *depressus* group and the supplemental dentition of the mandibles in *ambiens* and others. The complete absence of the basal groove of the pronotum in *perpolitus*—a character so universal in the genus—is an interesting peculiarity of that species.

Promecognathus Chaud.

This genus is singularly out of position in the Munich catalogue near *Broscus*; the mes-epimera broadly attain the middle coxæ and this, together with certain habitual features, show that it should not be far removed from *Pasimachus* and *Scarites*. There are few genera in which the errors of the eye in comparative measurements are so patent as here; for example, in most of the species it would be stated with great certainty that the prothorax is longer than wide, and, when this condition obtains, I will state "apparently longer than wide"; but, when we come to make accurate measurements by scale, it is seen that not only is this part not actually longer than wide but generally quite the reverse. There are two divisions of the genus as follows:

- Elytra elongate-oval, the epipleura rather gradually and moderately dilated at base. 2
- Elytra more abbreviated, the epipleura more rapidly and broadly expanded at base. 3
- 2—Mandibles longer, straight, becoming decidedly arcuate only rather beyond the middle; body deep black, polished; antennæ rather short; prothorax sinuously narrowed basally and apparently much longer than wide; elytra evenly oval, a third wider than the prothorax, nearly one-half longer than wide. Length (excluding mandibles in all cases) 9.0–11.0 mm.; width 3.2–4.0 mm. California (coast regions near San Francisco). Very abundant and varying considerably in size. **lævissimus** Dej.
- Mandibles shorter, almost evenly arcuate from near the base to the apex; body much smaller and distinctly more slender, piceo-rufous; head relatively narrower; antennæ still shorter; prothorax slender, actually longer than wide; elytra more elongate, without trace of striation. Length 8.0 mm.; width 2.5 mm. California (Sta. Cruz).
debilis Csy.
- 3—Prothorax apparently longer than wide; head distinctly narrower than the prothorax. 4
- Prothorax apparently as wide as long, actually much wider than long; head very large, barely narrower than the prothorax. 6
- 4—Mandibles smaller, short, not as long as the head, the latter much narrower than the prothorax, which is much expanded anteriorly, broadly and feebly impressed at the sides of the base, the latter parallel and straight for some distance as usual; base truncate, three-fifths the maximum width, the angles right and sharp; elytra almost one-half wider than the prothorax, oval, with rather distinct though rounded humeri, not quite one-half longer than wide, with fine and feeble, finely punctulate striæ, obsolete except inwardly; base of the epipleura a fifth wider than the diameter of the middle coxæ; male with a feeble close-set brush of hair internally toward

tip as in some *Pasimachi*. Length (σ^7) 9.7 mm.; width 3.8 mm. California (Lake Co.),—Fuchs.....**contractus** n. sp.
 Mandibles elongate, as long as the head and neck or very nearly.....5
 5—Mandibles unusually long, fully as long as the head and neck, the median tooth of the left rather abrupt and strong, of the right not quite so developed; palpi slender and pale as usual; head with the usual two longitudinal folds near the eye inclosing two setigerous punctures; prothorax apparently longer than wide but actually a little wider than long, formed as in the preceding; elytra two-fifths wider than the prothorax, a third longer than wide, oblong-oval, truncate at base, the humeri rather distinct and not broadly rounded; surface convex, shining, with traces of very fine and obsolete punctulate striæ suturally; basal part of the epipleura broader, fully a fourth wider than the middle coxæ; tibiæ with feeble internal brush in all the three examples at hand. Length 10.0–11.5 mm.; width 3.9–4.5 mm. California (locality unrecorded),—Levette collection.....**crassus** Lec.

Mandibles not quite so long and with the internal medial tooth of the left very broad and obtuse; hind tibia in type with feeble brush of short hairs, the penultimate antennal joint on the flat side nearly three-fifths longer than wide and much narrowed basally from about the middle; inner fold near the eye much broader, becoming narrow posteriorly for a much shorter distance than in *crassus*; body throughout broader than in *crassus*, the prothorax similar but larger and similarly a little wider than the head but apparently barely at all longer than wide; elytra larger, somewhat stouter but otherwise nearly similar and with very fine vestigial striation; epipleura at base rather more than a fourth wider than the middle coxæ. Length 12.5 mm.; width 4.9 mm. California (Monterey),—Dunn.

corpulentus n. sp.
 6—Body larger, very stout, deep black, shining; head very large, the inner ridge broad, not cariniform though pointed posteriorly; mandibles slightly shorter than the head, with only the feeblest broad swelling to indicate the median tooth—possibly in part through wear;—prothorax large, apparently fully as wide as long, in general form as in the other species; elytra large, not two-fifths wider than the prothorax, a third longer than wide, broadly truncate at base, with distinct though rounded humeri, the sides less arcuate than in any of the three preceding; epipleura at base a fourth wider than the middle coxæ; hind tibiæ in the type with a feeble short brush. Length 13.5 mm.; width 5.0 mm. California (locality unrecorded).

grandiceps n. sp.

Sexual characters seem to be almost wanting, as in *Pasimachus* and *Scarites*, and I am uncertain whether even the tibial brush alluded to in the descriptions is truly a sexual character or not, as it seems to be present in most of the specimens at hand, including a large series of *lavissimus*, which is abundant in the suburbs of

San Francisco. The species are to be mutually distinguished more by general habitus than special modifications of a structural nature—again as in *Scarites*.

Feronia Group.

About twenty-five years ago, the writer during a residence in the Pacific districts, brought together a large amount of material in *Pterostichus* and allied genera, including extended series of many species, and, since that time, this collection has been considerably augmented from all parts of the country. After identifying a large proportion of the described species and confirming most of the published synonymy, it is found that a very large part of this material is still nondescript and it seems desirable that it should be recorded in a systematic manner and the published types thus rendered available for discussion and comparison in one of our public museums. It is impossible to identify several of the species of Mannerheim, Motschulsky and Chaudoir, and in case foreign museums should be willing to lend such American museum the types for study and observation, this direct comparison, which is the only way to identify them, would forever banish the uncertainties that have in great measure retarded progress and such synonymy as might become evident could readily be recorded. It is hardly advisable to cease all systematic work, merely because a considerable number of the older species cannot be identified and future revelation of synonymy can do no great harm.

The genera erected by LeConte at the expense of *Pterostichus*, as it exists in America (Proc. Acad. Phila., 1873, p. 302) are in my opinion all valid, the weakest perhaps being *Holciophorus*. I would modify the scope of the latter genus in such a way as to make the peculiar habitus, which distinguishes *ater* from the other Pterostichids, its principal *raison d'être*, excluding therefore *serripes*, which has the facies of *planctus* and *tarsalis*, and include with *ater* the *morionides*, of Chaudoir, which has precisely the habitus of *ater* and is principally distinguished therefrom by the unique and highly specialized tarsi, the form of the latter not being suggested by the tarsi of *tarsalis*, included with *morionides* in our lists as a distinct genus—*Hammatomerus* Chaud. The three examples of *tarsalis* at hand, taken on the shores of Lake Tahoe, have a facies

not at all different from that of *serripes*, *planctus* and *herculeaneus* and the emargination of the epistoma and labrum, alluded to by LeConte, is only a broad and moderate sinuation from side to side, frequently observable in other species of *Pterostichus*.

Holciophorus Lec.

This genus includes an unexpectedly large number of specific forms. *Ater* Dej., was not correctly identified by LeConte, who applied the name to the very large species, with fine striæ, flat intervals and more or less opaque elytra, of which there are a number at present in collections. A reference to the original description of Dejean (Spp. des Col. III, p. 339) shows that *ater* is entirely of a rather shining black, with fine striæ and flat intervals, and that it is a much smaller species than those to which the name is usually attached, being only 19 by 7 mm. in dimensions. The specimen in my collection which I have selected to represent *ater*, is a female, slightly larger than the measurements given by Dejean, but having the prothorax, as stated, almost as long as wide; it is shining, with the elytra subopaque—probably due in part to sex—and is from Portland, Oregon. The species, or possibly in some cases what may be considered subspecies, before me may be known as follows:

- Joints of the middle and hind tarsi gradually narrowed from apex to base.....2
 Joints of the middle and hind tarsi constricted and pedicellate basally; prothorax as in *ater*.....6
 2—Sides of the prothorax becoming straight and nearly parallel for some distance before the basal angles, which are right or very nearly so though more or less blunt.....3
 Sides of the prothorax oblique and more feebly sinuate basally, the angles distinctly obtuse and often very blunt.....5
 3—Form slender, the head moderate, only a little more than half as wide as the elytra, deep black, strongly shining, the elytra strongly micro-reticulate and alutaceous; head scarcely two-thirds as wide as the prothorax, the apical impressions deep but not large, the epistoma and labrum only just visibly and broadly sinuate from side to side; antennæ moderately thick and compressed, gradually brown distally; prothorax almost as long as wide, strongly narrowed basally, the base rectilinearly truncate, a little more than two-thirds the maximum width, the two latero-basal lineiform impressions forming the lateral limits of a large deep impression; elytra more convex than in any other, a fifth wider than the prothorax, two-thirds longer than wide, the striæ fine but evidently impressed and finely, not closely but distinctly punctate, the intervals becoming rather strongly

- convex laterally, almost but not quite flat suturally; hind tarsi rather short, stout, the basal joint less than two and one-half times as long as wide. Length (σ^7) 19.5 mm.; width 6.5 m. Vancouver Island (Victoria).....**vancouveri** n. sp.
- Form stouter, the head relatively larger, at least three-fourths as wide as the prothorax.....4
- 4—Size smaller,* deep black, shining, the elytra densely alutaceous and rather dull in lustre; head three-fourths as wide as the prothorax, the anterior impressions, as usual, lineiform and deep, the epistoma broadly sinuate from side to side, the labrum broadly, angularly emarginate medially; antennæ extending well behind the thoracic base, the first three joints black, the remainder having a brownish tinge; prothorax but little wider than long, the base broadly sinuate medially, two-thirds the maximum width, the latero-basal impressions long and linear, separated by a shining, convex, scarcely depressed surface, the basal marginal stria not extending inward beyond the inner impression; elytra fully a fourth wider than the prothorax, oblong-oval, fully three-fifths longer than wide, feebly convex, with fine and feebly impressed, finely but distinctly punctate striæ and nearly flat intervals; hind tarsi rather long, moderately stout, the first joint about three times as long as wide. Length (φ) 23.0 mm.; width 8.2 mm. Oregon.....**ater** Dej.
- Size large, rather stouter, similar in color and lustre; head (σ^7) nearly four-fifths, or (φ) three-fourths, as wide as the prothorax, the epistoma feebly, subangularly sinuate from side to side, the labrum rather deeply sinuate in median half; antennæ heavy and strongly compressed, nearly one-half longer than the head and mandibles, the latter with broad smooth longitudinal folds medially; prothorax transverse, fully a fourth wider than long, the sides rounded, strongly converging posteriorly, the base two-thirds the maximum width, broadly and feebly sinuate medially, the impressions nearly as in the preceding, except that the intervening surface is a little more depressed though shining; elytra (σ^7) a sixth wider than the prothorax and nearly three-fifths longer than wide, or (φ) fully a third wider than the prothorax and less than one-half longer than wide, more broadly obtuse at apex but only a little more opaculate, oblong-oval in both sexes, the striæ fine, very finely and rather remotely punctate, the intervals flat, feebly convex laterally and distinctly so near the apex; hind tarsi rather long, moderately stout, the basal joint fully three times as long as wide in both sexes. Length (σ^7) 26.0–28.0, (φ) 25.5 mm.; width (σ^7) 9.2–10.0, (φ) 9.6 mm. California (Lake Tahoe).....**pollens** n. sp.
- 5—Mandibles bent inward at apex very obliquely and almost transversely, having some long oblique smooth folds medially; coloration and lustre as usual, the elytra a little more opaque; head four-fifths as wide as the prothorax, the impressions not very deep and not sharply defined, the epistoma very feebly sinuate from side to side, the labrum rather deeply sinuate in median half; antennæ with the first four joints black, the remainder brownish; prothorax

almost a third wider than long, the base rather strongly sinuate medially, two-thirds the maximum width, the impressions as in the preceding, the angles very obtuse and rather broadly rounded; elytra unusually short and very feebly convex, oblong, parallel, with broadly arcuate sides and very broadly obtuse apex, fully a fourth wider than the prothorax and scarcely one-half longer than wide, the striæ very fine, scarcely at all impressed, except feebly at the sides, very finely and remotely punctulate, the intervals flat; hind tarsi as in the preceding, rather stout. Length (♂) 27.0 mm.; width 9.8 mm. A single example marked "California" in the Levette collection. **cephalus** n. sp.

Mandibles bent inward much less obliquely at apex, the external angle broadly rounded, their upper surface without evident long smooth folds; hind tarsi of the usual stoutness but shorter than in either of the preceding, the first joint barely two and one-half times as long as wide; body similar in color, lustre and in feeble convexity to the preceding; head a little less developed, only a little more than two-thirds as wide as the prothorax, otherwise nearly as in *cephalus* throughout; prothorax scarcely a fourth wider than long, a little more transverse in the female, the base and impressions nearly similar, the angles obtuse and only slightly blunt (♂) but rounded (♀), the sides before them only feebly sinuate; elytra parallel, with feebly arcuate sides and very obtuse apex, a fourth wider than the prothorax and nearly three-fifths longer than wide, slightly shorter in the female, the striæ less fine and rather more distinctly and usually more closely punctate, the intervals flat. Length (♂) 26.0, (♀) 24.5 mm.; width (♂) 9.2, (♀) 9.5 mm. Two examples without locality label. **domitor** n. sp.

6—Form narrower and more elongate, rather more convex than any of the preceding species except *vancouveri*, deep black and shining, the elytra not dull in either sex; head large, four-fifths (♂) to three-fourths (♀) as wide as the prothorax, the sides behind the eyes more swollen and longer than in any of the preceding, the impressions and antennæ nearly similar, the epistoma slightly more impresso-sinuate, but with the lower margin only feebly sinuate, the labrum similarly sinuate medially, the mandibles smooth, not abruptly inflexed apically; prothorax similar in form to the preceding, the impressions almost similar; elytra about a sixth (♂) to nearly a fourth (♀) wider than the prothorax, three-fourths to three-fifths longer than wide respectively, moderately convex, the striæ fine, feebly impressed, more deeply so laterally and with the punctures so fine as to be obsolescent, the intervals feebly convex, rather strongly so laterally and apically; hind tarsi stout, gradually feebly tapering, nearly four-fifths as long as the tibiæ, the joints slender at base, abruptly and very strongly swollen in their apical halves, with a constriction just before the expansion, the basal joint relatively much shorter than in any of the preceding, the first four joints very gradually and uniformly diminishing in length; male larger and stouter than the female and with more developed head. Length

(♂) 21.0, (♀) 18.5-19.0 mm.; width (♂) 6.9, (♀) 6.2 mm. California (Placer Co.).....*morionides* Chd.

The tarsal peculiarities in *morionides* are extremely marked, not only in the form of the joints but in the relatively short basal joint, but, in view of the marked similarity in general habitus of the body, I cannot regard this as at all generic in significance, but only a peculiar development in a special organ due to some isolated feature of environment. Nearly all the species have the last male ventral segment strongly carinate medially, the carina not attaining the base and more prominently elevated near its anterior limit, with the surface impressed along each side of the carina; this carina varies but little from one species to another of the typical *Holciophori*; it is however much shorter in *cephalus* than in *domitor*, *pollens* or *vancouveri*, and, in *domitor*, the tuberculiform elevation is at the centre of the disk, while in *pollens* it is far anterior to the centre. In *morionides*, however, it is wholly obsolete, but, as it reappears in a greatly modified form in certain species of *Pterostichus*, such as *serripes* and *adoxus*, I do not think that it can be held to possess generic value of any great weight, except in indicating groups of species. At any rate, it is my conviction that general habitus is by far the most important structural character for estimation of genera in the difficult *Feronia* group.

Pterostichus Bon.

Among our species at present listed under this name, there are several groups that could well be considered generic. In fact the Munich catalogue has distributed many of them among such genera as *Argutor*, *Omaseus*, *Steropus*—erroneously including *Evarthrus* Lec.—and *Platysma*, but in a manner very confusing and frequently incorrect. However, as it would answer no good purpose to assign the vast majority of our species to genera other than *Pterostichus*, until a general study of the species of the world could be undertaken, I shall not attempt such partition except in a few cases.

The species of LeConte's first division, having no dorsal elytral foveæ, are extremely numerous on the Pacific coast and, though closely allied among themselves, in many instances, can always be recognized at a glance when juxtaposed in series. For convenience of reference I would divide this section of the genus, which is entirely

Pacific, excepting the Atlantic *adoxus* group, into several groups based almost wholly upon general facies. These habital groups seem to be entirely natural and clearly delimited subdivisions, as shown when we come to examine their anatomy more in detail. Designating these minor subdivisions by the names of certain well known species, they can be recognized as once as follows:

Group I—*plactus* Lec.

The species of this group are as a rule peculiarly parallel in outline, with subrectilinear sides, the polished pronotum depressed to a greater or less degree, generally nearly flat and subquadrate, never strongly narrowed behind and having the latero-basal impression large, elongate and unusually conspicuous; the lateral edges are frequently crenulate in a feebly marked and irregular manner and the elytral striæ almost always deeply impressed, with strongly convex intervals. This simply gives a general sketch of the group, the species of which are very numerous and possibly identifiable as follows:

- Body more parallel, the elytra never more than just visibly wider than the prothorax; hind tarsi shorter and usually much stouter, or at least with the first joint always much shorter than the next two combined, simple to very lightly grooved on the outer side; hind tibiæ (♂) more or less crenulate internally throughout. 2
- Body less parallel, the elytra always rather distinctly wider than the prothorax, the hind tarsi longer and more slender, with the first joint always strongly grooved on the outer side and usually nearly as long as the next two combined. 9
- 2—Larger species, not under 16 mm. in length. 3
- Smaller species, not exceeding 12 mm. in length. 5
- 3—Body deep black, slightly convex, rather dull in lustre; head two-thirds as wide as the prothorax, the epistoma and labrum feebly and evenly sinuate from side to side; antennæ stout, attaining the thoracic base, blackish, the basal joint dark rufous; prothorax slightly wider than long, the sides broadly rounded, feebly converging and broadly, feebly sinuate basally, the base sinuate medially, four-fifths the maximum width, the impressions at each side broad and feeble, subconfluent; elytra oblong-oval, one-half longer than wide, obtusely but not abruptly rounded at apex, nearly a fifth wider than the prothorax, the striæ very fine, scarcely at all punctulate or impressed, the intervals almost flat, convex laterally; hind tarsi short and not very stout, the joints normal in form, narrowing basally and feebly inflated apically; serrulation along the inner edge of the hind tibiæ unusually distinct though obtuse; female much smaller than the male. Length (♂ ♀) 17.5–20.0 mm.; width 6.2–7.0 mm. California. **serripes** Lec.

Body black but much more depressed, shining throughout in both sexes and much more flattened on the upper surface, more explanate and more broadly margined at the sides of the elytra. 4

4—Form elongate, parallel, not very intense black, the under surface and legs frequently picescent; head not so large as in *serripes*, three-fifths as wide as the prothorax, the epistoma and labrum similarly broadly sinuate from side to side, the antennæ not quite so long or thick, scarcely extending to the thoracic base, rufescent at base; prothorax widest anteriorly and about equal in width to the elytra, moderately narrowed and broadly, feebly sinuate at the sides basally, the base broadly and distinctly sinuate medially, four-fifths the maximum width; surface almost flat, the median stria strong; inner of the lateral impressions long, shallowly impressed, the outer very short, more sharply impressed and bounded externally by a small longitudinal ridge not extending quite to the hind angles; elytra oblong, parallel, the sides barely at all arcuate, one-half longer than wide, subcircularly rounded at tip, the humeri dentiform; surface very depressed, broadly and feebly declivous laterally, the striæ rather strong, very deeply impressed, finely punctate, the intervals all strongly convex, not at all crenated by the punctures, which are fine and at the bottom of the striæ; hind tarsi short, notably stout, the joints as in the preceding but shorter and broader; inner tibial crenulation of the male obtusely rounded but distinct. Length (σ^7) 17.3–18.0 mm.; width 6.3–6.8 mm. California (Lake Tahoe). **tarsalis** Lec.

Form much less elongate, similar in coloration and polished lustre; head not quite two-thirds as wide as the prothorax, the epistoma, labrum and antennæ nearly as in *tarsalis*, except that the antennæ are scarcely at all paler at base; prothorax nearly a fourth wider than long, formed throughout nearly as in the preceding; elytra much shorter and relatively broader, two-fifths longer than wide and more than a fourth wider than the prothorax, the parallel sides more arcuate, the surface rather less depressed, less gradually declivous toward the broadly concave margins; striæ strong, very deeply impressed, finely but strongly punctate, the punctures feebly crenating the very convex intervals; tarsi almost similar, the crenelures of the tibiæ obsolete in the female as usual. Length (♀) 17.0 mm.; width 6.7 mm. California (Big Trees). **sequoiarum** n. sp.

5—Elytra equal in width to the prothorax or but just visibly wider. . 6

Elytra more oval, at the middle very evidently wider than the prothorax. 8

6—Elytra with distinct violaceous lustre, black, strongly shining, elongate, parallel, feebly convex; head moderate, only three-fifths as wide as the prothorax, the anterior impressions rather fine, arcuate, the epistoma and labrum barely visibly sinuate, the latter, as well as the palpi and antennæ except sometimes basally, obscure to paler testaceous; prothorax about as long as wide, broadly rounded at the sides, feebly, obliquely and subsinuously narrowing posteriorly, the base nearly five-sixths the maximum width, broadly sinuate medially, margined laterally, the angles sharp but rather more than right, the inner of the lateral impressions strong, long and straight, the

outer very feeble, sometimes represented by a small isolated rounded impression; elytra oblong, three-fifths longer than wide, the parallel sides feebly arcuate, the humeri only very minutely denticulate; striæ fine, impunctate, rather well impressed, the intervals feebly convex inwardly, strongly so laterally; hind femora (σ^7) obtusely and subangularly swollen beneath a little beyond the middle, the tibiæ feebly bent, the inner crenelures of the male very long, feeble and wave-like, the tarsi only slightly stout, the outer groove of the basal joint not attaining the apex. Length (σ^7) 11.8-12.5, (♀) 10.0-11.7 mm.; width (σ^7) 4.2-4.6, (♀) 3.9-4.25 mm. British Columbia (Metlakatla) to Alaska.....**amethystinus** Dej.

A—Similar to the preceding but still narrower and with notably less brilliant violaceous elytral lustre, the elytra nearly two-thirds longer than wide, with still finer and less impressed striæ, the intervals usually nearly flat throughout the width, the hind legs similar, except that the tarsal joints are slightly more constricted basally. Length (σ^7) 10.3-12.0, (♀) 9.5-11.2; width (σ^7) 3.65-4.3, (♀) 3.5-4.15 mm. Northern California to Vancouver Island.

novellus n. subsp.

B—Similar to *amethystinus* but much smaller and more slender, with the prothorax not about as long as wide but distinctly wider than long and with more strongly arcuate sides, the fine line diverging from the margin posteriorly and approaching the inner impression, then abruptly turning outward to the extreme tip of the basal angles, more distinct and sharply defined than it ever is in *amethystinus*; elytra narrower, sometimes barely as wide as the prothorax; hind tarsi more slender, with the joints less cordiform but not so slender or with so rectilinearly triangular joints as in *jejunos*. Length (♀) 8.7-9.8 mm.; width 3.15-3.6 mm. British Columbia (Metlakatla),—Keen.....**metlakatlæ** n. subsp.

Elytra without trace of violaceous lustre.....7

7—Form more broadly oblong, parallel, depressed, deep black and strongly shining; head as in the preceding, the palpi testaceous, the antennæ and labrum piceous; impressions distinct, arcuate and very strongly diverging posteriorly; prothorax almost as long as wide, the sides broadly arcuate, obliquely and feebly converging posteriorly, becoming not distinctly subsinuate basally, the angles finely, subdenticularly prominent; base and impressions as in the preceding, except that the longitudinal impression is much shallower; elytra much shorter, barely one-half longer than wide, the parallel sides feebly arcuate, the striæ rather fine but very deeply impressed throughout, impunctate, the intervals all strongly and subequally convex; legs short, the posterior (σ^7) with the femora only feebly, obtusely swollen beneath, the tibiæ straight, strongly but obtusely crenulate within except basally, the tarsi short and unusually stout, the basal joint not quite twice as long as wide, with the external groove very feebly impressed though entire. Length (σ^7) 11.5-12.5 mm.; width 4.2-4.65 mm. California (Monterey),—Dunn.

obsidianus n. sp.

Form more elongate, nearly as in *amethystinus* but with longer elytra

and differently impressed pronotum, black, feebly convex, shining; head moderate, with very deep anterior impressions, the epistoma and labrum broadly and feebly sinuate at tip; antennæ piceous; prothorax as in *amethystinus*, except that the external of the two latero-basal impressions is not feeble and rounded but deep, elongate and linear, with its external side cariniform, the angles nearly right but slightly blunt, the inner longitudinal impression deep and strong; elytra nearly three-fourths longer than wide, the sides parallel, feebly arcuate, the striæ fine, impunctate, feebly to strongly impressed intero-externally, the intervals virtually flat to distinctly convex correspondingly; humeri rather strongly denticulate; hind legs missing in the type. Length (♀) 12.5 mm.; width 4.8 mm. British Columbia. A single example sent by Prof. James F. Kemp.

scenicus n. sp.

Form still narrower and more elongate, smaller in size, strongly shining and very pale yellowish-testaceous throughout in the type—probably from immaturity, although the integuments are full and firm and with no indication of distortion on drying;—head three-fifths as wide as the prothorax, the impressions fine, arcuate and diverging; prothorax as long as wide, feebly convex, the sides broadly and moderately arcuate, feebly converging but becoming not evidently more than straight basally, the angles slightly and minutely prominent, sharp and right; base feebly sinuate medially, four-fifths the maximum width; surface depressed and feebly rugulose between the transverse impression and the base, with a larger feeble concavity involving the latero-basal impressions, which are feeble, the inner only a fourth the total length, the outer almost obsolete; elytra elongate-oval, not evidently wider than the prothorax, broadly rounded at the sides, rather acutely rounded at apex, three-fourths longer than wide, the moderate impunctate striæ rather deeply impressed, the intervals feebly convex, strongly so laterad; humeral denticle very small; scutellar stria long, joining the first stria at a long distance behind the scutellum; legs moderate, the tibia (♂) feebly crenulate within, the tarsi rather stout, the basal joint shorter than the next two, grooved at the side, the second not grooved. Length (♂) 11.5 mm.; width 3.7 mm. California (Sta. Cruz Mts.).

arcanus n. sp.

♂—Body rather small in size and suboblong, feebly convex, shining, piceous-black to black, the entire under surface, legs, antennæ and labrum piceo-rufous; head moderate, the impressions rather shallow, diverging, the epistoma and labrum truncate; prothorax slightly shorter than wide, the sides broadly arcuate, feebly oblique posteriorly, becoming just visibly subsinuate near the angles, which are more than right though minutely, subdenticularly prominent; base feebly sinuate medially, margined laterally, the latero-basal impressions moderate, the inner long but not very deep, the outer small and almost obsolete; elytra oblong-oval, barely one-half longer than wide, depressed above, strongly declivous laterad, with strong, impunctate and deeply impressed striæ and moderately convex intervals, sometimes becoming nearly flat suturally; supplemental

- basal stria rather long and distinct; hind legs (σ^7) scarcely modified, the tarsi short, moderately stout, the outer groove of the first joint faint and coming far from attaining the apex. Length (σ^7 ♀) 9.4–10.7 mm.; width 3.4–3.8 mm. California (coast regions north of San Francisco). [*scutellaris* Lec.] **brunneus** Dej.
- Body still smaller, elongate-suboval, rather strongly convex, black, shining, the elytra alutaceous and with faint violaceous suffusion; under surface, legs and antennæ dark reddish-brown; head moderate, the impressions deep, parallel, internally arcuate and extending to the line of the anterior limit of the eyes; labrum truncate, the epistoma sinuato-truncate; prothorax in outline as in the preceding, the inner of the two impressions rectilinear and sharply defined, the outer almost obsolete; elytra oval, almost equally convex throughout, rather more than one-half longer than wide and nearly a fourth wider than the prothorax, striæ fine though rather strongly impressed, impunctate, the intervals feebly convex internally to strongly so externally, the humeral denticulation extremely minute; supplemental or scutellar stria short but distinct, oblique; hind tarsi more slender than in any of the preceding species, the basal joint much shorter than the next two combined, the external groove shallow but entire, the fourth joint nearly one-half longer than wide. Length (♀) 8.7 mm.; width 3.2 mm. A single example unlabeled in the Levette collection but undoubtedly from the Pacific coast and probably from California. The species rightfully belongs to the *amethystinus* series, but has very much more slender tarsi, having more triangular and not cordiform joints. . . **jejunus** n. sp.
- 9—Elytra with obvious violaceous lustre. 10
 Elytra without trace of violaceous lustre 12
- 10—Elytra short, scarcely more than a third longer than wide and sexually nearly similar in lustre and striation. Body notably short and stout in form, somewhat convex, polished, the elytra strongly alutaceous, with the micro-reticulation distinct; head almost three-fourths as wide as the prothorax, the distinct subparallel impressions separated by nearly one-half more than either from the sides, the epistoma and labrum rather broad, evenly and very distinctly sinuate from side to side; antennæ moderate, pale brownish-testaceous, the four basal joints abruptly blackish-piceous; prothorax large, just visibly wider than long, the sides feebly and irregularly crenulate, broadly rounded, becoming moderately convergent and broadly, feebly sinuate to the right and rather sharp angles, the base broadly sinuate medially; impressions large and deep, one-third as long as the disk, the concavity limited externally by a short feeble longitudinal ridge near the margin, extending to the base; elytra broadly, evenly convex, opaculate in both sexes, with rather fine impunctate and moderately impressed striæ, the intervals broadly and only very feebly convex, more distinctly laterad, oblong-oval, broadly, obtusely, rounded behind, fully two-fifths wider than the prothorax, the scutellar stria distinct, oblique; legs rather slender, the hind tibiæ (σ^7) with a few broadly rounded and very feeble crenules internally, wanting (♀) as usual, the tarsi slender, the first

two joints grooved externally. Length (σ^7 ♀) 14.0-14.6 mm.; width 5.4-5.8 mm. California (Anderson Valley, Mendocino Co.). Four examples. **breviusculus** n. sp.

A—Similar except that the body is a little larger and a trifle less abbreviated, with the elytra a little more shining, more distinctly violaceous and with rather less convex intervals; differing principally, however, in having the sides of the prothorax posteriorly simply oblique and virtually straight, not sinuate, the hind tarsi, also, are a little longer. Length (♀) 15.5 mm.; width 5.9 mm. California (Sonoma Co.),—Koebele. **mimus** n. subsp.

Elytra more elongate, deeply striate, with very convex shining intervals (σ^7), or a little shorter, opaculate, with finer and feebler striæ and less convex intervals (♀). 11

11—Form elongate, very moderately convex, shining, black, the elytra distinctly violaceous; head rather large, fully three-fourths as wide as the prothorax, the anterior impressions deep and conspicuous, separated by barely a third more than either from the sides, the epistoma and labrum relatively narrower than in the preceding, both feebly sinuate, the latter subangulately; antennæ nearly as in the preceding; prothorax large, subquadrate, the sides broadly rounded, with very distinct and broad crenelures throughout, gradually very feebly converging and scarcely at all sinuate posteriorly, the angles rather more than right and blunt; surface with obvious transversely wavy subrugulose lines, the impressions as in the preceding; elytra (σ^7) fully three-fifths longer than wide and scarcely visibly wider than the prothorax, parallel, with broadly arcuate sides, the striæ deep, impunctate, the intervals all convex, the micro-reticulation evident but shining and, besides, with numerous feeble short transverse irregular indentations; hind tibiæ (σ^7) with broad rounded internal crenelures in apical two-thirds, the tarsi black, rather slender. Length (σ^7) 17.0 mm.; width 5.8 mm. Oregon (Clackamas Co.).

crenicollis Lec.

Form almost similarly elongate but more ventricose, or with smaller head and prothorax; male strongly shining throughout, the female with shorter and broader, dull and less deeply striate elytra; head not so large as in *crenicollis* and with the anterior impressions separated by about one-half more than either from the sides, the epistoma and labrum nearly similar, the mandibles strongly, arcuately hooked at tip, the latter very acute; antennæ nearly similar; prothorax almost as long as wide, the sides nearly even and much more arcuate, distinctly converging and broadly sinuate basally, the angles but little more than right and rather sharp; surface with the transverse wavy lines indistinct, the impressions nearly as in *breviusculus*; elytra (σ^7) three-fifths longer than wide and a fourth wider than the prothorax, shining, with deep impunctate striæ and very convex intervals, or (♀) rather less than one-half longer than wide, fully a third wider than the prothorax, opaque, with finer, less impressed striæ and flatter intervals, also decidedly wider behind the middle than at base, this being but slightly apparent in the male; scutellar stria similar; tarsi slender, the hind tibiæ only very ob-

solely and partially crenulate within in the male. Length (σ^7 ♀) 15.0-16.5 mm.; width 5.25-5.8 mm. California (Humboldt Co.).

suffusus n. sp.

Form more slender, black, shining, the elytra in sculpture and lustre as in *crenicollis*; head much less developed, the anterior impressions separated by fully one-half more than either from the sides, the epistoma and labrum nearly similar; prothorax of very different form, fully as long as wide, the sides broadly and feebly crenulate but almost straight from apex to base, being but just visibly arcuate, becoming straight basally, the base feebly sinuate medially, arcuate near the angles and five-sixths the maximum width, the angles slightly obtuse and blunt; surface similarly impressed, the wavy lines nearly obsolete; elytra nearly three-fourths longer than wide, parallel, with feebly arcuate sides and rounded apex, nearly a third wider than the prothorax, the striæ rather fine but deeply impressed, the intervals shining though micro-reticulate and also feebly, indefinitely sculptured or subpunctulate along their crests, strongly convex, becoming much less so suturally; hind tibiæ (σ^7) with about four very low long wave-like internal crenelures, the tarsi slender. Length (σ^7) 15.0 mm.; width 5.3 mm. Oregon (Clackamas Co.).

rectilatus n. sp.

12—Elytra a little wider behind the middle than at base, notably so in the female; hind tibiæ more or less crenulate within in the male. 13

Elytra evenly oval or oblong-oval. 15

13—Elytra shorter, not more than one-half longer than wide. Body rather broadly suboblong, moderately convex, deep black, shining, the elytra feebly alutaceous (σ^7), opaque (♀); head rather large, fully two-thirds as wide as the prothorax, the impressions deep, feebly arcuate, separated by fully one-half more than either from the side, the epistoma and labrum feebly sinuato-truncate; antennæ piceous, gradually testaceous apically; prothorax slightly transverse, a fourth to fifth wider than long, the sides rounded, not distinctly crenulate, slightly converging, becoming broadly, feebly sinuate, to the feebly prominent but rather blunt angles, the base broad, feebly sinuate medially, fully five-sixths the maximum width; surface with feeble wavy lines, the inner lateral impression large, deep and a third the total length, the surface thence to the sides sloping upward, feebly convex and unmodified, except sometimes by a very fine and feeble juxta-marginal ridge, bordered inwardly by a very feeble impression; elytra (σ^7) a third or (♀) nearly two-fifths wider than the prothorax, rounded behind, very broadly and obtusely in the female, the striæ deeply impressed, the intervals strongly convex, more feebly in the female; hind tibiæ (σ^7) very feebly or scarcely visibly crenulate within, or (♀) simple, the tarsi rather long and slender. Length (σ^7 ♀) 14.0-16.0 mm.; width 5.6-6.0 mm. California (coast regions north of San Francisco) **plutonicus** n. sp.

Elytra more elongate. 14

14—Form elongate, deep black, strongly shining, the elytra in the female alutaceous; head nearly as in the preceding, except that the labrum is transversely truncate; antennæ more elongate, extending well

behind the thoracic base, similarly colored; prothorax large, almost as long as wide, the sides distinctly crenulate throughout, broadly rounded, feebly converging and straight posteriorly, the angles evidently obtuse though only a little blunt; surface with distinct wavy lines, the inner of the lateral impressions large and deep, the outer also deep but short, bounded externally by a nearly vertical wall; median stria coarse and deep; base feebly sinuate medially, broad, five-sixths the maximum width or even more; elytra two-thirds longer than wide or three-fifths (♀), a fourth (♂) to a third (♀) wider than the prothorax, the striæ impunctate, very deep, the intervals very convex throughout, broader and much flatter in the female; hind tibiæ (♂) strongly crenulate within except near the base, the tarsi rather long and slender. Length (♂ ♀) 15.8–17.0 mm.; width 5.7–6.0 mm. British Columbia (Metlakatla),—Keen.....**herculaneus** Mann.

Form even narrower, deep black, shining, the elytra rather dull in the female; head nearly as in the preceding, the antennæ not quite so long; prothorax as long as wide, a little more rounded at the sides and more sinuously narrowed basally, the edges only very finely and obsoletely crenulate, the angles slightly obtuse, blunt, the base broadly sinuate except near the sides, and nearly five-sixths the maximum width, the impressions similar, very deep and conspicuous, the wavy lines obsolete, except those radiating from the median stria, which are short and irregular; elytra nearly two-thirds longer than wide, barely a fourth wider than the prothorax, not very obtusely rounded behind, only just visibly wider behind the middle than at base, the striæ rather coarse and deeply impressed, impunctate, the intervals very moderately convex inwardly, strongly so externally; scutellar stria oblique, long, joining the first stria; humeral denticulation strong. Length (♀) 15.5 mm.; width 5.4 mm. Oregon (Clackamas Co.).....**pugetanus** n. sp.

Form rather narrow, smaller in size, deep black, polished, the elytra of the female opaculate; head well developed, the anterior impressions unusually large and deep, widely separated, the labrum and epistoma sinuato-truncate; antennæ rather slender, yellow-brown distally; prothorax only very slightly wider than long, nearly as in the preceding, except that there are no lines radiating from the median stria, the transverse wavy lines evident, the basal angles right and but slightly blunt; lateral edges feebly though rather coarsely crenulate; elytra (♂) three-fifths longer than wide, only very slightly wider behind the middle than at base, with the sides broadly but evidently arcuate, about a third wider than the prothorax, the apex evenly rounded and the intervals between the very deep and punctureless striæ conspicuously convex throughout, or (♀) broader, much wider behind the middle than at base, with the sides diverging from the base for two-thirds and nearly straight, one-half longer than wide, a third wider than the prothorax, the apex very broadly obtuse and the intervals moderately convex, strongly so laterally; male hind tibiæ with a few very broad and

feeble crenules, the tarsi rather long and slender. Length (σ^7 φ) 13.0-14.0 mm.; width 5.0-5.7 mm. California (Humboldt Co.).

cuneatulus n. sp.

- 15—Head moderately large, distinctly more than half as wide as the prothorax; body only feebly convex, deep black, with blackish-brown legs, shining, the elytra of the female only a little less shining; head with the anterior impressions rather fine, widely separated, the epistoma and labrum sinuato-truncate; antennæ rather stout, extending behind the thoracic base; prothorax nearly a fifth wider than long, the sides feebly rounded, very slightly converging, becoming straight or just visibly sinuate to the angles, which are right to slightly obtuse and rather sharp, the edges fine and even, not at all crenulate; base very broad, feebly sinuate in about median third, margined except medially and only very slightly less than the maximum width; surface feebly convex, the median line sharply impressed, being sharply defined at the bottom of a rather conspicuous impression, the inner of the lateral impressions rather long and moderately deep, the external short, sharply limited externally, the intermediate surface not depressed; elytra oblong, with broadly arcuate sides, a third to fourth wider than the prothorax, one-half longer than wide, evenly and not very obtusely rounded behind, almost similar in the sexes, finely but deeply striate, the striæ not distinctly punctate, the intervals feebly convex, nearly flat suturally; hind tibiæ (σ^7) finely and feebly serrulate within, the tarsi not quite so long or slender as in the preceding group. Length (σ^7 φ) 12.0-14.0 mm.; width 4.5-5.2 mm. California (Lake Tahoe, Big Trees, Placer and Siskiyou Cos.)..... **planctus** Lec.

Head nearly similar but rather more elongate and with slightly larger eyes, fully three-fifths as wide as the prothorax, the latter nearly as long as wide, or slightly transverse (φ), the side margins fine and absolutely devoid of crenulation, much more rounded than in the preceding, distinctly converging and broadly, feebly sinuate basally, the angles right, scarcely blunt, the base only very feebly sinuate medially, margined except at the middle and five-sixths the maximum width, the surface evidently convex, as in the preceding, except that the inner of the basal impressions is still larger and the surface thence to the sides convex, with a small feeble and sometimes evanescent impression; elytra more oval, with more arcuate sides, parallel, not obtusely rounded at apex, three-fifths longer than wide, a fourth to nearly a third wider than the prothorax, with rather fine but deeply impressed and impunctate striæ and strongly convex shining intervals throughout in both sexes, barely perceptibly less shining in the female; humeral denticle almost obsolete; tarsi longer and more slender than in *planctus*. Length (σ^7 φ) 11.4-13.0 mm.; width 4.2-5.0 mm. Oregon (Clackamas Co.) to Vancouver Island (Victoria). One example is labeled "Kansas, Snow" but almost certainly in error. [*algidus* Lec.]..... **validus** Dej.

Head smaller, rather short, but little more than half as wide as the prothorax, the epistoma sinuato-truncate, the labrum rectilinearly; body very shining, blackish-piceous to dark castaneous, small

in size, the antennæ testaceous, rather stout; prothorax moderate, distinctly wider than long, the edge fine and even, the sides rather strongly arcuate, converging and gradually feebly sinuate basally, the angles nearly right, sharply defined; base sinuate medially, margined in outer fourth, five-sixths the maximum width; surface nearly as in the preceding, except that the inner impression is much narrower and feebler and the outer not evident, except occasionally and very obsoletely; elytra oval, rather convex, not quite one-half longer than wide, a fourth wider than the prothorax, with fine but very deeply impressed striæ and rather strongly convex shining intervals in both sexes throughout; humeral denticle distinct, the scutellar stria generally represented by a coarse subbasal puncture. Length (♂ ♀) 8.6–10.0 mm.; width 3.0–3.7 mm. British Columbia (Metlakatla and Inverness),—Keen. *castaneus* Dej.

The male sexual characters at the abdominal apex are feeble throughout, except in *serripes*, where there is an abrupt and very strong medial carina at the extreme tip, surrounded by a depression of the surface. A part of the differences noted between *sequoiarum* and *tarsalis* is probably due to the sex of the specimens compared, but by no means all; for example the strong strial punctures of the former, somewhat crenating the sides of the intervals, cannot be accounted for in this way; the striæ in *tarsalis*, in which species the surface is more flattened than in any other known to me, are said to be impunctate, and, under transverse illumination, no vestige of punctuation is to be seen, but when viewed under longitudinally oblique light the punctures become very obvious. I infer that my representatives are properly identified, as they agree with the description in all other features and are from the same local water system. *Amethystinus* and *novellus* are appreciably different when viewed in large series; the female is, on the whole, distinctly smaller than the male and varies more in size, which is decidedly an exception to the general rule. The female differs from the male in a different manner in the various species; in some, such as *cuneatulus*, in the more cuneiform, opaque and less costulate elytra; in others simply in smaller size, while in some, such as *planctus* and *castaneus*, there is very little sexual difference.

Group II—*californicus* Dej.

In this group the prothorax is rather large and convex as a rule, but always distinctly shorter than wide, the linear impressions of the head and pronotum smaller and shallower and the elytral striæ

finer and less impressed than in the preceding, the intervals nearly always flat. The more convex upper surface, only moderately elongate, oval or oblong-oval, finely striate elytra, but little wider and sometimes scarcely at all wider than the prothorax, and the feeble impressions of the pronotum, the outer always small and very feeble and sometimes wanting, impart a very different habitus from the preceding group, and one that is perfectly consistent throughout. An examination of *californicus* and *protractus*, will at once furnish a criterion enabling one to place any species properly in the group. There are seventeen species in my collection, which, as shown by extended series, are unmistakably distinct among themselves, but a peculiar paucity of special structural differences renders a tabular statement of them most difficult and rather unsatisfactory. The group is not so essentially northern as the preceding and also extends further inland; it inhabits the Rocky Mountain regions as far south as New Mexico and the Pacific coast as far as Los Angeles. The following table may aid in identification:

Elytra more elongate, generally nearly three-fourths longer than wide, somewhat shorter in <i>longulus</i> and <i>tahoensis</i> ; body generally more depressed.....	2
Elytra less elongate, never more than two-thirds longer than wide and frequently much shorter; body more convex; species confined to the Pacific coast regions.....	7
2—Tarsi rather stout; sides of the prothorax arcuately oblique posteriorly to the angles. Body rather elongate, moderately convex, shining, deep black, the margins of the prothorax narrowly and diaphanously obscure testaceous basally; head three-fifths as wide as the prothorax, the impressions moderate, arcuate, widely separated, the epistoma nearly truncate, the labrum sensibly sinuate; prothorax a fourth wider than long, only just visibly narrower than the elytra, the sides rounded, gradually converging and becoming less arcuate to the basal angles, which are obtuse though sharply marked; base transversely truncate, margined slightly near the sides, four-fifths the maximum width, the surface broadly convex, polished, the inner impression moderate, less than a third the total length, the outer slightly elongate and very evident though shallow; anterior angles rounded; elytra a little more than two-thirds longer than wide, parallel, with broadly rounded sides and evenly rounded apex, the surface distinctly alutaceous, the striæ fine, impunctate, the intervals nearly flat; scutellar stria distinct, oblique; humeri denticulate; hind tibiæ (♂) distinctly crenulate within, the tarsi black, the fourth joint cordiform, barely one-half longer than wide. Length (♂) 16.0 mm.; width 5.6 mm. Wyoming (Yellowstone Park),—Wirt Robinson.....	<i>fontinalis</i> n. sp.

Tarsi more slender as a rule; sides of the prothorax sensibly sinuate toward the hind angles. 3

3—Prothorax scarcely visibly narrower than the elytra, at first sight not at all narrower. 4

Prothorax very evidently narrower than the elytra. 5

4—Form rather stout, subparallel, moderately convex, shining, deep black, the elytra evidently and equally alutaceous in both sexes; head not quite three-fifths as wide as the prothorax, nearly as in the preceding, except that the epistoma is sinuato-truncate and the labrum even more sinuate medially; prothorax larger and wider than in any other of the group, similar in the sexes and a fifth to fourth wider than long, the sides arcuate, rather strongly converging posteriorly, becoming very feebly sinuate near the angles, which are obtuse but sharp and even a little prominent; base transversely truncate, three-fourths the maximum width, the surface nearly as in the preceding, the outer impression distinct but shallow; elytra oblong, with parallel and very feebly arcuate sides and evenly rounded apex, rather more than two-thirds longer than wide, the impunctate striæ moderately fine but somewhat deep, the intervals nearly flat; humeri and scutellar stria as in the preceding; hind tibiæ (♂) with rather shorter and sharper inner crenulation, the tarsi not more slender and virtually similar. Length (♂ ♀) 15.0-16.2 mm., width 5.6-5.8 mm. New Mexico. **zunianus** n. sp.

Form slender, rather more depressed, much smaller in size, subparallel, piceous-black and frequently paler, rather shining throughout, the elytra not sensibly opaculate; head moderate, nearly as in the preceding but with relatively narrower epistoma and labrum, the eyes similarly well developed and convex; prothorax a fourth wider than long, the sides rather strongly arcuate, converging and only a little less arcuate posteriorly to near the angles, where they become just visibly sinuate for a short distance, the angles obtuse but sharp and minutely, feebly prominent; surface slightly convex, the inner impression distinct and fully a third of the total length, the outer obsolete; base feebly sinuate medially, margined near the sides, fully three-fourths the maximum width; elytra barely more than three-fifths longer than wide, subequal in width to the prothorax, parallel, with broadly arcuate sides and rounded apex; striæ fine, impunctate, rather deep, the intervals very slightly convex; legs rather short, the hind tibiæ (♂) feebly crenulate internally, the tarsi rather slender but with the first joint shorter than the next two combined. Length (♂ ♀) 9.5-11.2 mm.; width 3.2-3.9 mm. Colorado (Boulder Co., Leadville and Eldora) and Montana. Abundant. **longulus** Lec.

5—Sides of the prothorax only broadly and feebly sinuate toward the hind angles, which are obtuse though rather sharply defined and sometimes feebly and minutely prominent. Body rather narrow and elongate, only feebly convex, shining, the elytra alutaceous; color black, though not very intense and frequently rufescent; head nearly three-fifths as wide as the prothorax, almost as in the preceding; prothorax between a fourth and fifth wider than long, the sides

- moderately rounded anteriorly, converging, becoming feebly sinuate posteriorly; base transversely truncate, four-fifths the maximum width, margined laterally; surface rather depressed, very feebly convex, the latero-basal impressions both distinct but unusually feeble, the surface between them feebly depressed and generally somewhat alutaceous; elytra three-fourths longer than wide, broadly rounded at tip, about a fifth wider than the prothorax, the sides broadly and feebly arcuate; striae fine, simple, not very deep, the intervals nearly flat; hind tibiae (σ^7) with a few small and unusually widely separated feeble crenules internally, the tarsi rather long, the first joint as long as the next two. Length (σ^7 ♀) 14.0-16.0 mm.; width 4.7-5.2 mm. Colorado (Boulder Co., and with unrecorded locality), Wyoming and Montana (Mullan—the type above described); also one with slightly more obtuse basal angles labeled "California" in the Levette collection—probably erroneously. Jasper House (British America)—LeConte, the original locality. Abundant. [*inornatus* Bland]. **protractus** Lec.
- Sides of the prothorax more strongly sinuate posteriorly, becoming straight and nearly parallel for a rather long distance before the angles, which are sharply defined and generally right. 6
- 6—Form moderately slender, slightly convex, shining, the elytra only very faintly alutaceous, black but sometimes pallid; head a little larger than in the preceding, nearly three-fourths as wide as the prothorax, the impressions distinct; epistoma and labrum feebly sinuate; prothorax a fifth to fourth wider than long, the sides broadly rounded except basally, the base truncate, four-fifths the maximum width, the surface and impressions nearly as in the preceding; elytra elongate-oval, three-fourths longer than wide, a fourth to nearly a third wider than the prothorax, the sides more arcuate than in *protractus*, less obtusely rounded at tip, the striae and intervals nearly similar; hind tibiae (σ^7) feebly serrulate internally, the tarsi nearly similar, the basal joint not quite so long as the next two combined. Length (σ^7 ♀) 14.5-15.8 mm.; width 5.0-5.8 mm. California (Placer and Siskiyou Cos.). **parens** n. sp.
- Form much more slender, feebly convex, piceous-black, not very shining, the elytra opaque; head well developed, the anterior impressions slender, feeble and linear; prothorax rather depressed, only about a sixth or seventh wider than long, the sides feebly arcuate, feebly converging to the pronounced but broad basal sinus, the base transverse, nearly five-sixths the maximum width; surface feebly depressed toward the hind angles, the inner impression narrow and feeble, scarcely attaining the base, the outer defined only by a slight swelling parallel with the straight parallel part of the sides; elytra fully three-fourths longer than wide, elongate-oval, with arcuate sides and strongly rounded apex, fully a third wider than the prothorax, the striae very fine, impunctate, the intervals flat; scutellar stria short but distinct, oblique, the humeral denticle minute and feeble; basal joint of the hind tarsi nearly as long as the next two. Length (♀) 13.0 mm.; width 4.7 mm. California (Siskiyou Co.). **occultus** n. sp.

Form nearly as in the preceding but evidently shorter, feebly convex, moderately shining, dark rufo-piceous, the elytra black and opaculate, barely less so in the male; head almost three-fourths as wide as the prothorax, the impressions fine, arcuate and diverging, separated by rather less than twice that of either from the sides; prothorax throughout as in the preceding, except that the sides before the basal angles are not so parallel or straight, the sharp angles being evidently obtuse and not right; elytra as in *occultus* but broader, more oblong-oval and much shorter, this species belonging to the preceding section in general habitus but to the succeeding in the less elongate elytra, three-fifths to two-thirds longer than wide and about a fourth wider than the prothorax; sides parallel, very feebly arcuate, more rounding at base, moderately obtuse at apex, the striæ very fine, impunctate, the intervals flat; legs moderately long and slender, they as well as the entire under surface castaneous. Length (σ^7 ♀) 12.8–13.5 mm.; width 4.4–4.9 mm. California (Lake Tahoe)..... *tahoensis* n. sp.

7—Hind angles of the prothorax sharply marked, generally minutely and feebly, denticularly subprominent; body rather deep black in color throughout except in the aberrant *miscellus*.....8

Hind angles very obtuse, never prominent, sometimes rounded. Southern California coast regions.....15

8—Prothorax only a little though evidently, as a rule, narrower than the elytra.....9

Prothorax much narrower than the elytra in both sexes.....13

9—Size larger, the upper surface strongly convex, deep, shining black, the elytra but just visibly alutaceous; head moderate, the impressions rather feeble, the epistoma and labrum rather strongly sinuate from side to side; prothorax notably large, a fourth or fifth wider than long, rather strongly rounded at the sides almost throughout but more converging posteriorly, only just visibly sinuate near the angles, which are obtuse though rather sharp; base very feebly sinuate in median third, thence transverse and margined to the angles; surface unusually convex and declivous laterally, very finely margined throughout, the inner impression rather long, moderately impressed, not attaining the base, the outer obsolete or very nearly, the intermediate surface convex; elytra oblong-oval, convex, with arcuate sides and rounded apex, one-half longer than wide, only a fifth to sixth wider than the prothorax, the striæ very fine, shallow, minutely punctulate along the bottom, the intervals flat; hind tibiae (σ^7) feebly crenulate within except basally, the tarsi rather stout but with the first joint somewhat longer than the next two. Length (σ^7 ♀) 12.0–14.5 mm.; width 4.35–5.5 mm. California (vicinity of San Francisco Bay to Humboldt Co.). Very abundant. [*amplicollis* Mots.; *simplex* Lec.]..... *californicus* Dej.

Size nearly as in *californicus*, the body less convex and more oblong, deep black, shining, the elytra not distinctly alutaceous in the male—the only sex at hand;—head moderate, barely three-fifths as wide as the prothorax, the impressions and labrum nearly as in the preceding,

- the latter narrower; prothorax differing greatly in form, more transverse, over a fourth wider than long, the sides much less broadly rounded, converging posteriorly in about basal half, becoming slightly sinuate near the angles, which are very briefly right but not prominent; base similar; surface less convex, the median sulcus coarser and deeper, the inner impression rather feeble and short, coming far from attaining the base, the outer slightly elongate, basal, near the sides and bounded externally by a pronounced slope, the intermediate surface slightly depressed posteriorly; side margins similarly very fine; elytra more oblong, fully three-fifths longer than wide, not distinctly wider than the prothorax, the sides broadly and more feebly arcuate, the apex similarly rounded, the striae very fine, scarcely modified, the intervals flat; humeral denticle obsolete, the scutellar stria long; tarsi rather long and slender. Length (♂) 14.0 mm.; width 5.0 mm. California (Hoopa Valley, Humboldt Co.) **cupidus** n. sp.
- Size smaller, less convex and more distinctly striate than in *californicus*. 10
 10—Color deep black, prothorax only slightly wider than long. 11
 Color rufo-piceous, the head and prothorax frequently dark testaceous, the latter much shorter and more transverse, a fourth to nearly a third wider than long. 12
- 11—Form moderately stout, rather shining, the elytra very slightly alutaceous; head moderate, the impressions fine, feeble, oblique, the epistoma and labrum feebly sinuato-truncate; prothorax much more depressed than in the preceding, the sides rounded from apex to base, more converging posteriorly, not sinuate near the basal angles, which are minutely and denticularly prominent; sides much more broadly grooved and reflexed than in *californicus*; inner impression long and rather strong, the outer obsolete and surface convex to the sides; base broadly sinuate in median three-fifths only, margined thence to the sides, four-fifths the maximum width; elytra one-half longer than wide to a little longer, oval, with broadly arcuate sides and rounded apex, a fourth to fifth wider than the prothorax, rather convex, the striae fine but deeply impressed, impunctate, the intervals feebly convex, rather strongly laterad; humeral denticle obsolete. Length (♂ ♀) 10.7–12.7 mm.; width 3.7–4.5 mm. California (Humboldt Co.). Abundant. **humboldti** n. sp.
- Form rather slender, similar in sculpture and lustre, the elytra narrower and less convex; head nearly similar, the labrum more sinuate; prothorax nearly similar but less reflexed at the sides, the latter with the converging sides posteriorly differing in becoming gradually broadly, though only just visibly, sinuate toward the angles, which are similarly sharply marked; surface with the inner impressions shorter and much feebler, the outer sometimes evident as a minute feeble indentation, the intermediate surface not so convex as in *humboldti*; base similar but more truncate; elytra more elongate, three-fifths longer than wide and barely a sixth wider than the prothorax, oval, with feebly arcuate sides and rather strongly rounded apex, the striae finer and much more shallow than in the preceding, mpunctate, the intervals very flat throughout; legs

moderate. Length (σ^7 ♀) 10.7-13.0 mm.; width 3.4-4.5 mm. California (Humboldt Co. to Monterey). Very abundant about San Francisco Bay.....**vicinus** Mann.

- 12—Lustre shining, the elytra alutaceous and generally darker than the anterior parts, the legs and under surface dark testaceous; head nearly as in the preceding species; prothorax strongly rounded at the sides, the latter becoming rather rapidly and strongly convergent basally and almost straight, not in the least sinuate toward the angles, which are minutely, denticularly prominent; base broadly sinuate, except laterally, where the margin is fine, only a little more than three-fourths the maximum width; surface moderately convex and margined laterally, the inner concavity in the form of a broad and very shallow impression, not at all sharp along the bottom, thence to the sides flat, the outer obsolete; elytra decidedly short, a little less than one-half longer than wide, just visibly (σ^7) to fully a third (♀) wider than the prothorax—the female much smaller and less parallel than the male,—oblong-oval, with broadly arcuate sides and obtusely rounded apex; striæ very fine, impunctate, feebly impressed, the intervals nearly flat, feebly convex laterad; legs rather short, the hind tibiæ (σ^7) very feebly and obtusely crenulate within, the tarsi rather stout, with the first joint nearly as long as the next two. Length (σ^7 ♀) 8.8-11.7 mm.; width 3.2-4.3 mm. California (Sta. Barbara,—Dunn and also from an unrecorded locality in the Levette collection). Abundant.....**miscellus** n. sp.

- 13—Elytral striæ fine and impunctate but deep, the intervals broadly convex, rather strongly so laterad. Body in the female stouter than any other of this group, the male much less stout, shining, the elytra (σ^7) rather shining, only feebly alutaceous, or (♀) opaque and with the micro-reticulation stronger; head moderate, nearly as in *vicinus*; antennæ pale, the four basal joints piceous; prothorax a fourth wider than long, strongly rounded at the sides almost throughout the length, rapidly converging basally and very briefly and feebly sinuate at the slightly prominent angles; surface nearly as in *humboldti*; elytra oblong-oval, a little more than one-half longer than wide, with broadly arcuate sides and evenly rounded and not very obtuse apex, more than a fourth wider than the prothorax, two-fifths (♀), the striæ fine but deeply groove-like, impunctate, the humeral denticle subobsolete; hind tarsi rather slender. Length (σ^7 ♀) 13.0-14.3 mm.; width 4.6-5.3 mm. California (Humboldt Co.) and southern Oregon. Six males and nine females.
bucolicus n. sp.

- Elytral striæ very fine, impunctate and not deep, nearly as in *vicinus*. . . 14
14—Moderately slender, rather convex, shining, deep black, the elytra subopaque in both sexes; head moderate, the linear impressions rather deep but fine, the antennæ pale, gradually piceous basally; prothorax only moderately convex, the sides broadly rounded, gradually feebly converging toward base and broadly, just visibly sinuate, the angles very slightly and obtusely prominent; base five-sixths the maximum width, rectilinearly truncate, margined laterad; surface with moderate inner impressions, the surface externally thereto

feebly convex, the outer impression small and extremely faint; elytra two-thirds longer than wide, nearly a third to two-fifths wider than the prothorax, the sides distinctly and broadly arcuate, the apex strongly rounded; striæ fine, the intervals broad and flat; tarsi rather long, the basal joint of the posterior as long as the next two. Length (σ^7 ♀) 13.8–15.0 mm.; width 4.9–5.4 mm. California (North Fork, Madera Co.);—also two examples with label “Cal.” in the Levette collection. Seven examples. **ordinarius** n. sp.

Moderately stout and convex, shining, piceous-black, the elytra deep black and alutaceous; head large, three-fourths as wide as the prothorax, the impressions rather deep and closer than in any other of this group, being separated by a third more than either from the sides, the epistoma and labrum broadly sinuate; antennæ castaneous, piceous basally; prothorax nearly a third wider than long, the sides strongly rounded, converging but barely at all sinuate basally, the angles obtuse but sharp though not at all prominent; base transverse, four-fifths the maximum width; surface with numerous feeble wavy transverse lines, the inner impression obtusely rather deep, obsolete before the base, the outer elongate, evident but feeble; elytra two-thirds longer than wide, oblong-oval, rounded at tip, a third or more wider than the prothorax; intervals flat, feebly convex near the sides, the striæ fine; hind tarsi rather slender. Length (σ^7 ♀) 13.0–14.5 mm.; width 5.0–5.4 mm. California (Lake Tahoe). Four examples. **laborans** n. sp.

15—Form elongate, moderately convex, deep black, shining, the elytra (σ^7) shining and only faintly, or (♀) less shining and strongly, alutaceous; head moderate, the impressions rather strong, lineiform, diverging; antennæ piceous, paler near the tip; prothorax a fifth wider than long, rather strongly rounded at the sides from apex to base, the sides more converging basally and straight, the angles very obtuse, bluntly rounded; base somewhat arcuate, sometimes with a faint median sinuation, margined only near the sides, about three-fourths the maximum width; surface broadly convex, the inner impression long, deep and conspicuous, the surface externally thereto convex, unimpressed; lateral margins unusually broadly concave and reflexed; elytra oblong-oval, rather flattened suturally, two-thirds longer than wide, strongly rounded at apex, only about a fifth wider than the prothorax, the striæ very fine and shallow, impunctate, the intervals flat; hind tarsi rather long and slender. Length (σ^7 ♀) 12.5–14.5 mm.; width 4.8–5.0 mm. California (Sta. Barbara),—Dunn. Seven examples. **barbarinus** n. sp.

Form elongate, suboval, rather convex, polished, piceo-rufous throughout, the elytra barely at all alutaceous in either sex; head moderate, the impressions fine, diverging, the epistomal apex and labrum unusually narrow, feebly sinuate; antennæ pale, with the nude first three joints darker and rufous; prothorax fully a fourth wider than long, strongly rounded at the sides, which become strongly convergent posteriorly and barely straight near the angles, which are very obtuse though distinct, not rounded but not in the least prominent; base relatively narrower than in any other of the group, feebly sinuate medially,

two-thirds the maximum width; surface rather convex, only finely reflexed at the sides, the inner impression small, feeble, linear, a fourth the total length, the surface exterior thereto as convex as any other part of the sides and completely devoid of impression; elytra scarcely one-half longer than wide, oval, with arcuate sides and rather strongly rounded apex, scarcely visibly wider than the prothorax, the striæ extremely fine and feeble, impunctate, the intervals flat; hind tarsi rather slender but shorter than usual. Length (♂ ♀) 10.0-11.2 mm.; width 3.4-3.7 mm. California (Los Angeles Co.)..... *inermis* Fall

The three species *vicinus*, *humboldti* and *bucolicus* are mutually rather closely allied but abundantly distinct; they increase in size and stoutness, also in the depth of the elytral striæ and convexity of the intervals, in the order named; in the first and last the male is notably smaller and more slender than the female as a rule, but in *humboldti*, the only two females in twelve exponents of the species are scarcely as large as the average of the males, conforming more nearly to a frequently observed condition in this part of the series. The large series of most of the species confirm their mutual distinctness even at a casual glance.

Group III—*menetriesi* Mots.

As the groups here proposed are based principally on habitus, it seems proper to give the large and strikingly distinct *menetriesi* a group to itself, allied closely to the preceding group but distinguished from any of its species by the large size, convex and opaque upper surface, almost obsolete thoracic impressions and excessively fine, minutely and remotely punctulate striæ, the elytra being notably oval and convex. The two examples in my collection were taken at Monterey and measure 18-20 by 7-8.7 mm.

Group IV—*congestus* Ménét.

Although really nothing more than an extension of the *californicus* group, that founded upon such species as *congestus* and *castanipes*, presents an appreciably different habitus due to the more elongate form, more convex surface, regularly elongate-elliptical elytra and more elongate prothorax, there being but few species in which this somite becomes shorter than wide. The group is on the whole more southern in range and does not seem to spread beyond the confines of California, the neighboring islands and perhaps the adjacent

parts of Arizona. There are before me some fifteen species, of which only three have been hitherto described. They may be known as follows, presenting rather more structural diversity than those of the *californicus* group:

- Larger species, generally not less than 15 mm. in length and confined to the fauna of southern California and neighboring regions. 2
- Smaller species, usually under 15 mm. in length, not occurring in the regions cited. 7
- 2—Prothorax very distinctly shorter than wide. 3
- Prothorax about as long as wide. 4
- 3—Elongate, rather convex, deep black, shining, the elytra moderately and subequally alutaceous in both sexes; head three-fifths as wide as the prothorax, the impressions deep, arcuate, widely separated and diverging; mandibles entirely black; antennæ pale brown, the first three joints piceous; prothorax fully a fourth wider than long, the sides rounded, rather rapidly converging behind about the middle, becoming oblique and very broadly, feebly sinuate posteriorly, the angles very obtuse and somewhat rounded; base not quite three-fourths the maximum width; surface strongly reflexed at the sides, impressed toward the basal angles, the inner impression moderately long, rather deep, the outer obsolete; anterior angles notably rounded; elytra oval, two-thirds longer than wide, nearly a third wider than the prothorax, with fine, slightly impressed, impunctate striae and nearly flat intervals, becoming feebly convex laterad; humeral denticle almost obsolete, the scutellar stria short but evident, oblique, not approaching the first stria; tarsi moderately long, rather stout. Length (σ^7 ♀) 15.0–17.0 mm.; width 5.7–6.2 mm. California (Los Angeles). One example marked "Arizona," but perhaps erroneously. *isabellæ* Lec.
- Elongate but not so decidedly as in the preceding and more ventricose, the type castaneous-brown throughout though exhibiting no other evidences of immaturity, the lustre as in *isabellæ*; head nearly similar but with finer and more linear impressions, the mandibles black, rufous basally; prothorax a fifth wider than long, similar in form, except that the sides posteriorly are much more sinuate, becoming gradually almost parallel at the basal angles, which are only a little more than right though slightly blunt; side margins similarly strongly reflexed, the apical angles however much more acute, only very narrowly rounded; surface nearly similar, except that the outer of the basal impressions is evident because of an elongate basal convexity near the sides; base three-fourths the maximum width; elytra rather broadly oval, very convex, three-fifths longer than wide, fully two-fifths wider than the prothorax, otherwise similar, except that the scutellar stria is longer, joining the first stria; female with four anal setæ, the inner pair double as is sometimes the case in *isabellæ*. Length (♀) 16.5 mm.; width 6.1 mm. California (San Diego).
jacobinus n. sp.
- 4—Sides of the prothorax oblique posteriorly, becoming only feebly sinuate toward the angles, which are obtuse and blunt. 5

Sides strongly sinuate, becoming straight and almost parallel for a long distance before the angles, which are right though similarly blunt. .6

5—Form elongate though moderately broad and convex, deep black, shining, the elytra less shining and alutaceous, almost similarly in the sexes, which are almost completely similar otherwise as well; head rather large, almost three-fourths as wide as the prothorax, the impressions rather broadly concave, the epistoma and labrum rather broad, evenly sinuate from side to side; prothorax not quite as long as wide, the sides rounded, rather strongly converging behind about the middle, becoming scarcely less than straight, the angles very obtuse and distinctly rounded; base about two-thirds the maximum width; surface rather strongly reflexed at the sides, the inner impression long and distinct, the surface thence to the sides convex, the outer impression obsolete; anterior angles moderately broadly rounded; elytra nearly three-fourths longer than wide, evenly oval, moderately convex, two-fifths wider than the prothorax, the sides almost evenly rounding to the basal ridge, the denticle completely obsolete; striæ rather fine but deep, impunctate, the intervals nearly flat, feebly convex laterad, the scutellar stria rather long, the first stria broadly interrupted near the base; hind tibiæ (♂) strongly crenulate internally, the tarsi rather long. Length (♂ ♀) 17.5–18.0 mm.; width 6.3–6.7 mm. California (San Clemente Island). Five remarkably uniform examples. *gliscans* n. sp.

Form very elongate and notably narrow, rather strongly convex, black, moderately shining, the elytra decidedly opaque; head fully two-thirds as wide as the prothorax, the impressions distinct, unusually widely separated, the epistoma strongly, the labrum feebly, sinuate; prothorax nearly as long as wide, formed almost as in the preceding, except that it is relatively smaller in size, with the oblique sides posteriorly broadly but sensibly sinuate, the angles a little less obtuse and but slightly blunt; surface rather strongly reflexed at the sides, more gradually sloping toward the apical angles, which are similarly moderately rounded, the basal impressions similar but with the surface thence to the sides flatter, the outer impression obsolete; base nearly three-fourths the maximum width; elytra very elongate, evenly oval, almost four-fifths longer than wide; striæ fine but rather deep, finely punctate, very distinctly toward the sides, the intervals nearly flat, sensibly convex laterad; humeral denticle distinct, the scutellar stria rather long, oblique, the first not interrupted; tarsi moderate. Length (♀) 16.5 mm.; width 5.8 mm. California (between Indio and Colton),—Dunn. *ovalipennis* n. sp.

6—Body rather stout and convex, black, moderately shining, the elytra strongly alutaceous; head moderate, the impressions separated as usual, deep and distinct, nearly parallel; prothorax much larger than in either of the preceding, about as long as wide, the sides broadly rounded, becoming evidently converging only well behind the middle, the situation rather abrupt; angles right, rather sharp; base nearly four-fifths the maximum width; surface not very convex, sloping gradually to the abruptly and strongly reflexed marginal bead, the inner impression rather small, somewhat sharply defined,

the outer wanting, the intervening surface flat; elytra oblong-oval, strongly convex, only about three-fifths longer than wide and a third wider than the prothorax; sides parallel, feebly arcuate to the distinct humeral denticle, the lateral margins unusually broadly concave and reflexed; striæ fine but cleft-like, slightly but unevenly punctulate, the intervals flat; male with the, in some form frequently observed, feeble transverse division of the last abdominal segment near the apex, the under surface throughout very polished; tarsi rather long. Length (σ^7 ♀) 15.5–16.2 mm.; width 5.4–6.1 mm. California (Sta. Barbara),—Dunn. **canallatus** n. sp.

Body rather more elongate, very convex, deep and rather opaque black; head smaller than in the preceding, not three-fifths as wide as the prothorax, the impressions deep and conspicuous, subparallel; prothorax as long as wide, formed throughout nearly as in the preceding, except that the surface is more steeply declivous toward the side margins, which are more concave along the reflexed beading, and that the inner impression is very feeble and diffuse; elytra more elongate and more oval, very convex, a third to two-fifths wider than the prothorax, the sides more arcuate, the apex broadly rounded, a little more than one-half to three-fifths longer than wide, the sides moderately widely concave and reflexed, the humeral denticle strong; striæ rather fine but unusually impressed, evidently crenulopunctulate toward the sides, the intervals very convex, more feebly suturad; legs moderate; prosternal process not margined laterally but truncate and moderately margined at apex as usual in related species. Length (σ^7 ♀) 15.0–17.5 mm.; width 5.6–6.6 mm. California (Los Angeles and near Colton). [*illustris* Lec.]

congestus Mén.

7—Elytra shorter, the prothorax larger, only very slightly narrower than the elytra; lustre more shining. Body subparallel, moderately convex, polished, black with piceous tinge, the elytra not alutaceous in the male; under surface and legs rufo-piceous, the latter testaceous distally; head moderate, nearly two-thirds as wide as the prothorax, the impressions fine, arcuate and diverging; prothorax about as long as wide, the sides rounded almost to the base, where they become feebly and briefly sinuate just before the angles, which are nearly right but rather blunt; base distinctly sinuate in about median third, thence margined to the sides, almost four-fifths the maximum width; surface convex, steeply declivous to the fine elevated marginal bead throughout, the inner impression moderately long and deep, the surface thence flattened near the base to a very small and feeble basal elevation near the angle; median stria fine but distinct; elytra three-fourths longer than wide, oblong-oval, with feebly arcuate sides and very feeble humeral denticle, strongly rounded at apex, the striæ impunctate, the intervals rather strongly convex throughout; scutellar stria long, forming the basal part of the first stria very evenly and without trace of junction, the base of the latter detached; legs moderately short. Length (σ^7) 13.7 mm.; width 4.5 mm. California (Mt. Diablo) **diabolus** n. sp.

Elytra more elongate, more broadly oval in *panticulatus*; prothorax

- always much narrower than the elytra; lustre more or less shining but with the elytra always alutaceous or opaque. 8
- 8—Prothorax fully as wide as long, more strongly rounded at the sides. 9
- Prothorax apparently longer than wide, more broadly rounded at the sides and more gradually narrowed posteriorly, except in *esuriens*, where it is even more abruptly constricted at base than in *castanipes*. 10
- 9—Size larger, black, shining, the legs castaneous-red; elytra barely at all alutaceous (♂) or distinctly so (♀); head very moderate, less than three-fifths as wide as the prothorax, the impressions rather fine and shallow, straight and feebly diverging, the epistoma and labrum evidently sinuate; antennæ very slender on the narrow side; prothorax with almost evenly rounded sides to near basal sixth, there rather abruptly sinuate to the angles, which are sharp but obtuse owing to an adjacent arcuation of the base, the latter very broadly and feebly sinuate, only just visibly margined and very near the sides, fully three-fourths the maximum width; surface convexly steep to the narrowly reflexed marginal bead, the gutter a little wider anteriorly, obsolete near the basal angles, the inner depression rather broadly but moderately impressed, the outer obsolete; apical angles rounded; median stria fine, far from attaining base or apex; elytra oval, two-thirds to three-fourths longer than wide, a third to nearly two-fifths wider than the prothorax, the striæ rather fine, impunctate, deeply impressed (♂) or very feebly (♀), the intervals respectively distinctly convex or nearly flat; scutellar stria short but evident, oblique; legs rather long. Length (♂ ♀), 12.8–14.8 mm.; width 4.3–5.7 mm. California (vicinity of San Francisco Bay). Very abundant. [*contractus* Lec.] **castanipes** Méné.
- Size much smaller, more slender, nearly similar in coloration and lustre but with the elytra almost similarly and only feebly alutaceous in both sexes; head similar but with the impressions shorter, feebler, more arcuate and more divergent, parallel in anterior half of their length; prothorax nearly similar throughout but with the base more narrowly subsinuate medially; elytra narrower though not quite so elongate, oval, convex, a fourth to nearly a third wider than the prothorax, the striæ rather fine, impunctate, feebly impressed, only slightly more so in the male, the intervals nearly flat in both sexes, the reflexed lateral margins much narrower than in *castanipes*, the scutellar stria very much longer, uniting with and forming part of the first stria as a rule, the basal part of the latter in most examples wholly detached; legs shorter, the femora notably more slender. Length (♂ ♀) 10.8–13.0 mm.; width 4.0–4.75 mm. California (Humboldt Co.). Abundant. **gregalis** n. sp.
- 10—Body elongate, frequently almost subcylindrical, the elytra not at all dilated. 11
- Body less elongate, ventricose, the elytra rather broadly oval. 15
- 11—Elytral margin broadly reflexed and concave, the surface very gradually declivous and flat toward the base and humeri. Form rather narrow, deep black, the legs and tarsi also black; surface moderately shining, the elytra dull; head rather long, four-sevenths

as wide as the prothorax, the impressions moderate, arcuate; antennæ piceous, paler apically; prothorax apparently distinctly longer than wide, the sides broadly and very moderately arcuate, gradually converging and very broadly, feebly sinuate behind to the perfectly right and very sharply defined angles; base broadly, very feebly sinuate medially, scarcely at all margined even at the extreme sides, three-fourths the maximum width; surface moderately convex and reflexed at the sides, the inner depression broadly, feebly impressed, not at all sharply defined, the outer wanting though with a minute and feeble ridge extending obliquely inward from each angle; median stria strong; elytra three-fourths longer than wide, oblong, with broadly and feebly arcuate sides and strongly rounded apex, only a little less than one-half wider than the prothorax, the striæ fine but abruptly deep, not punctate, the intervals almost perfectly flat even at the sides; scutellar stria short, fine, oblique; last ventral (σ^7) with a fine transverse crease* near the tip, having a single anal seta at each side. Length (σ^7) 13.5 mm.; width 4.8 mm. California. A single example without more definite indication of locality, from the Levette collection..... **annosus** n. sp.

Elytral margin narrowly reflexed, the surface rapidly declivous toward the humeri as usual, the striæ more impressed, the intervals always at least feebly convex laterad..... 12

12—Elytra subcylindric, very convex, the body conspicuously narrow and elongate. Color deep black, the legs black, the tarsi rufo-piceous; surface strongly shining, the elytra only faintly alutaceous even in the female; head moderate though nearly three-fourths as wide as the prothorax, the impressions short and deep; prothorax nearly as in *castanipes* though very much narrower, apparently a little longer than wide, the sides broadly rounded to about basal seventh or eighth, there rather abruptly becoming almost parallel to the angles, which are but little more than right, due to a basal arcuation, and sharply defined; base transversely subarcuate, sometimes with a small feeble median sinuation, not quite three-fourths the maximum width; surface convex, finely margined, the inner depression very short, broadly impressed, only about a fifth the total length, the outer wholly obsolete; median stria strong, subentire; elytra almost four-fifths longer than wide, very steeply and deeply convexo-declivous at the sides, becoming nearly vertical toward the extremely and unusually narrowly reflexed margins, parallel, the sides only very feebly arcuate, about a third wider than the prothorax, the apex strongly, rather narrowly rounded; striæ fine but very deep, smooth and punctureless, the intervals nearly flat, becoming feebly convex laterad; humeral denticle small though rather distinct; legs moderately short and slender. Length (σ) 12.0–13.0 mm.; width 4.1–4.65 mm. California (Mendocino Co.—Hermitage and Guallala)... **esuriens** n. sp.

Elytra elongate-oval, less convex and less deeply or vertically declivous at the sides; body not so narrow or subcylindric, the prothorax

*A fine impressed transverse and subarcuate line, apparently dividing the last abdominal segment in *Pterostichus*, is frequently evident but I am unable to determine its origin or significance.

more notably narrower than the elytra and not abruptly constricted at base as it is in *esuriens*.....13

- 13—Side margins of the elytra very narrowly reflexed; body small in size. Form rather narrow, moderately convex, shining, the elytra only just visibly alutaceous even in the female, black with a piceous tinge, the under surface slightly, and legs more pallidly, rufous; head moderate, the impressions rather short, parallel and deep; prothorax apparently longer than wide, the sides broadly, very moderately arcuate, becoming gradually convergent and broadly, feebly sinuate posteriorly to the angles, which are slightly obtuse though sharply defined; base transverse, not sinuate, faintly margined only at the sides, three-fourths the maximum width; surface moderately convex, only finely reflexo-marginate at the sides, a little less finely toward the obtusely rounded apical angles, the inner depression deep though broadly impressed and not sharply marked, about a fifth the total length and gradually turning outward posteriorly to the hind margin near the angles, the latter marked on the surface by a minute oblique elevation; median stria rather fine, not entire; elytra subevenly oval, rather acutely rounded at apex, three-fourths longer than wide, two-fifths wider than the prothorax, the striæ rather fine but deep, smooth and punctureless, the intervals nearly flat, feebly convex laterad; legs moderate, the tarsi unusually slender. Length (♀) 11.5 mm.; width 4.0 mm. California (Humboldt Co.—Hydesville, Valley of Eel River).....*lacertus* n. sp.
Side margins distinctly though moderately reflexed, as usual throughout this special group.....14

- 14—Elytral striæ impunctate as usual. Body rather small in size, black, shining, the elytra evidently alutaceous, the under surface and legs black or blackish; head moderate, the impressions nearly as in *lacertus*; prothorax apparently just longer than wide, the sides broadly and moderately rounded, gradually converging posteriorly but becoming just visibly sinuate only near the angles, which are abruptly rather acute and laterally prominent; base three-fourths the maximum width; surface unusually broadly grooved and reflexed along the sides, the inner impression fully a fourth the total length, rather broadly concave, though somewhat sharply defined along the bottom, nearly straight, not curving outward basally, the surface thence to the sides feebly convex, the outer impression obsolete; median stria fine but deep, subentire; elytra elongate-oval, the sides unusually evenly arcuate from the humeri almost to the narrowly rounded apex, more than three-fourths longer than wide, fully two-fifths wider than the prothorax; surface strongly but almost evenly convex, the striæ rather fine but very deep, the intervals just visibly convex inwardly but distinctly so and more alutaceous laterad; scutellar stria very short, oblique; legs moderately short and slender. Length (♀) 12.0 mm.; width 4.2 mm. California (Monterey),—Dunn.....*sponsor* n. sp.

Elytral striæ more or less evidently punctulate, at least laterally, the size materially larger, the elytra more parallel. Body elongate, moderately convex, rather narrow and more parallel, the female

slightly more ventricose than the male, shining, black, the legs rufo-piceous, the elytra only a little less shining in either sex; head moderate, the impressions rather deep and broadly concave, diverging; prothorax apparently a little longer than wide, the sides broadly arcuate, gradually and moderately converging posteriorly, becoming very feebly and rather broadly sinuate toward the angles, which are but slightly obtuse, sharply marked and subprominent; base very feebly sinuate, becoming feebly arcuate near the sides, scarcely more than two-thirds the maximum width; surface very moderately convex, rather finely reflexed at the sides, a little less finely anteriorly, the stria moderate, not quite entire; the inner impression broad and feeble, not extending to the base; surface thence to the angles flattened; elytra long, parallel, three-fifths to three-fourths longer than wide, two-fifths wider than the prothorax or more, the sides broadly arcuate, rounding a little more basally, the apex subacutely rounded; striae fine but rather deeply impressed, finely, obscurely punctulate, sometimes rather distinctly so laterally, the intervals feebly convex, rather strongly laterad, a little more strongly throughout in the male than in the female; scutellar stria moderate to short; legs rather slender. Length (σ^7 ♀) 14.0-14.5 mm.; width 4.7-5.4 mm. California (Lake Tahoe and Merced Cr.; also from an unrecorded locality)..... **sierranus** n. sp.

- 15—Form more ventricose and more convex, coloration similar, moderately shining, the elytra more strongly alutaceous; head rather small though nearly two-thirds as wide as the prothorax, the impressions fine, sharply defined, straight and diverging, the labrum sinuato-truncate; prothorax relatively smaller than in any other of the group, evidently longer than wide, the sides rather strongly rounded, converging posteriorly and becoming broadly but strongly sinuate basally, almost parallel for a considerable distance before the angles, which are right and sharply marked; base transverse, three-fourths the maximum width; surface only feebly convex, rather abruptly, deeply and narrowly concave and reflexed at the sides, less finely anteriorly, the anterior angles unusually acute, only very narrowly rounded at their tips; stria strong and subentire; inner impression feeble, very broadly concave, the outer obsolete; base almost completely unmarginated; elytra oval, with somewhat strongly arcuate sides throughout, rather sharply rounded at apex, three-fourths longer than wide, about one-half wider than the prothorax, the striae rather fine, feebly impressed, wholly impunctate, the intervals very feebly convex throughout, except apically, where they are rather strongly convex; scutellar stria long; legs rather long and slender. Length (♀) 14.0 mm.; width 5.0 mm. A single example without label in the Levette collection, but with scarcely a doubt from California..... **panticulatus** n. sp.

The three species *spraguei*, *gracilior* (*longicollis* || Mots.) and *horni*, of LeConte, also belong apparently to this group, but not having representatives of them at hand it is impossible to insert them definitely in the above table.

Group V—*angustus* Dej.

This group is composed of a moderate number of very small, parallel, more or less slender and sometimes linear species, inhabiting the more median parts of the Pacific coast regions, and, besides *angustus*, includes *inanis* and perhaps also *caligans* of G. H. Horn. Those before me may be known as follows:

Form not exactly parallel, the prothorax evidently narrower than the elytra, piceous-black, moderately shining, the elytra slightly alutaceous; head rather small, the impressions deep, abrupt, narrow and cleft-like, feebly diverging; eyes rather well developed, but not very convex; prothorax slightly longer than wide, the sides broadly arcuate, gradually converging behind very nearly to the angles, where there is a short strong sinus, the angles acute and rather prominent; base margined only very near the sides, four-fifths the maximum width; surface convex, extremely finely margined, the stria fine, not entire, inner impression linear, fine, moderately deep, more than a fifth the total length, the outer also fine, linear and deep like the inner, but only slightly more than half as long; elytra oblong-oval, nearly three-fourths longer than wide, twice as long as the prothorax and a fourth or fifth wider, evenly rounded behind, the sides very feebly arcuate and parallel; striæ fine but rather deep, smooth and impunctate, the scutellar moderately long but extremely fine, the intervals not quite flat; striæ on the flanks finer and feebler than those thence to the suture; line of lateral foveæ very broadly interrupted; legs only moderately long, rather slender. Female slightly stouter than the male just described, with more oval and laterally rounded elytra and shorter outer thoracic impression, bounded externally by a more obtuse elevation. Length (♂ ♀) 10.0–10.5 mm.; width 3.2–3.5 mm. California (Placer Co.),—Koebele.....*inanis* Horn

Form exactly parallel, the elytra not distinctly wider than the prothorax, the latter with entire basal margin; size smaller.....2

2—Form stouter, dark rufous in color throughout and strongly shining; head rather small, with the impressions unusually long, broad and strong, slightly arcuate and diverging; eyes well developed but not very convex; prothorax evidently longer than wide, parallel, the base being even somewhat wider than the apex; sides broadly and distinctly rounded, gradually feebly converging basally, becoming feebly sinuate very near the angles, which are nearly right and very sharp but not prominent; base feebly sinuate medially, strongly margined throughout the width and about eight-ninths (♀) to six-sevenths (♂) the maximum width; surface convex, very finely margined at the sides, the apex only feebly sinuate, the angles narrowly rounded; stria fine, not entire, the basal impressions fine, deep and lineiform, the outer about half as long as the inner and still shorter and feebler in the female; elytra oblong, feebly arcuate at the sides, rounded at apex, three-fifths longer than wide, dis-

tinctly less than twice as long as the prothorax and barely perceptibly wider, slightly more evidently in the female, the striae strong, deep, impunctate, those on the flanks even coarser and deeper than the others but more approximate; intervals convex, feebly so suturad, the lateral line of foveae widely interrupted; scutellar stria long, deep and distinct; humeral denticle small but strong; legs moderate. Length (σ^7 ♀) 8.0-8.5 mm.; width 2.5-2.8 mm. California (Sta. Cruz Mts.)..... **crucialis** n. sp.

Form very slender, parallel, piceous-brown to obscure rufous, shining throughout; head small though relatively larger than in the preceding, the impressions similar; eyes a little smaller and still less convex; prothorax as long as wide (♀) or somewhat elongate (σ^7), the base and apex equal; sides only very feebly arcuate, a little more rounding apically, very feebly converging, becoming very gradually straight posteriorly to the minutely prominent angles; base much more feebly margined than in the preceding and extremely near the maximum width in both sexes; stria and impressions nearly similar but with the lateral margin still distinctly narrower, excessively fine; elytra almost similar in form and striation, except that the striae are a little finer, especially on the flanks. Length (σ^7 ♀) 6.7-8.0 mm.; width 2.0-2.25 mm. California (San Francisco and Napa Co.). [*linearis* Lec.]..... **angustus** Dej.

Caligans Horn, which the author states (Tr. Am. Ent. Soc., 1891, p. 33) should be included in this group, is said to be still more slender and elongate than *angustus*, with very small eyes, with single basal thoracic impressions and without trace of the basal marginal line so conspicuous in *angustus* and especially in *crucialis*; the elytral striae are said to be obsoletely punctate, the length 10-11 mm., and the type locality Sylvania, Cal. The hind trochanters of the male in *inanis* are two-thirds as long as the femur and gradually attenuated to a very fine point; in the male of *angustus* they are more oval, with the apex rather narrowly blunt and are a little more than half as long as the femur; in the male of *crucialis* they are distinctly less than half as long as the femur, still more oval and more obtuse at tip than in *angustus*.

Elongatus, of Schaeffer, apparently belongs to this group and is probably closely allied to *inanis*, if not identical.

Group VI—*longicollis* Lec.

A special group seems advisable for a number of species, among the most minute of the first division of *Pterostichus* in the LeContean sense. They are stouter in form than those of the preceding group and more ventricose as a rule, have but a single subbasal

thoracic impression at each side and the base of the pronotum is invariably margined from side to side; beyond these features there is however considerable diversity in structure, especially of the thoracic angles and sternal process. This group is rather northern in range. The species in my collection may be defined as follows, the typical species of the group apparently not at hand:

- Hind angles of the prothorax distinctly defined and not rounded, though sometimes obtuse. 2
- Hind angles broadly rounded. 5
- 2—Body decidedly ventricose, the prothorax much narrower than the elytra; prosternal process not at all margined. 3
- Body more parallel, the elytra not or only slightly wider than the prothorax (*longicollis* section) 4
- 3—Form suboval, strongly convex, polished throughout, deep black, the legs rufo-castaneous; head rather small, with deep diverging impressions of moderate length; eyes well developed and rather convex; labrum unusually small, feebly sinuato-truncate, with rounded angles; antennæ rather short; prothorax as long as wide (♀) to slightly elongate (♂), the sides well rounded, converging posteriorly, becoming very briefly though distinctly sinuate just before the angles, which are right, very sharp and subprominent; base very faintly sinuate (♂) to rectilinear (♀), strongly margined, four-fifths the maximum width; apex very feebly sinuate, with the angles nearly right and scarcely at all blunt; surface convex, very finely margined, the stria distinct, attaining base but not apex, the depression nearly linear, impressed, deep, rather sharp at the bottom, a fourth the total length, the surface external thereto convex; elytra short, oval, only two-fifths longer than wide, two-fifths wider than the prothorax, obtusely rounded at apex, the sides arcuate; humeral denticle wholly obsolete; striæ fine, well impressed and punctulate (♂), or feeble and impunctate (♀), the series of lateral foveæ not interrupted but more widely spaced medially; legs moderate; tarsi very slender; hind trochanters of the male obtuse at tip, nearly half as long as the femur. Length (♂ ♀) 7.5–8.2 mm.; width 2.5–2.8 mm. Oregon (Clackamas Co.) *pumilis* n. sp.
- Form suboval, moderately convex, shining throughout, obscure testaceous in color, the legs even slightly paler; head rather small, with strongly diverging, moderate, arcuate and lineiform impressions, the labrum and eyes as in *pumilis*; antennæ moderate; prothorax barely as long as wide to a little shorter, the sides broadly rounded from apex almost to the basal angles, where they become very slightly sinuate, the angles slightly obtuse though sharply defined; basal marginal line fine and deep, the median sinus feeble, the base nearly five-sixths the maximum width and a little wider than the apex, which is very evenly and moderately sinuate, the angles right and slightly blunt, deflexed; surface moderately convex, the impression rather short and shallow and not attaining the base, further

from the sides than in the preceding; median stria fine, subentire; lateral margins very fine; elytra evenly oval and convex, short, not one-half longer than wide, fully a third wider than the prothorax, the striae fine, feebly impressed, impunctate, the intervals nearly flat; scutellar stria forming an evenly continuous part of the first stria, the basal part of the latter being widely detached and perfectly similar in the two female examples at hand; legs short, the tarsi rather long, very slender. Length (♀) 6.7-7.1 mm.; width 2.3-2.6 mm. California (Humboldt Co.—Hoopa Valley of the Trinity River).....**humilis** n. sp.

- 4—Subparallel, rather stout, strongly convex, shining throughout and deep black, the legs pale castaneo-rufous; head small, the impressions deep, straight and very strongly diverging; eyes convex and well developed, the antennae moderate, testaceous throughout; prothorax relatively large, as wide as long, the sides parallel, just visibly arcuate, rounding apically and moderately converging in about basal third, becoming broadly and just visibly sinuate toward the angles, which are very obtuse, due to the adjacent arcuation of the base, but minutely and sharply subprominent at apex; base broadly, feebly sinuate medially, arcuate laterally, the marginal line entire but very fine; apex as in *humilis* but with more rounded angles; surface convex, moderately finely margined at the sides, the impression short, a fifth the total length, attaining the base but extremely feebly and subindefinitely impressed; median stria strong, subentire; elytra short, oblong-oval, convex, scarcely one-half longer than wide, about a sixth wider than the prothorax and much less than twice as long, the apex subevenly rounded; sides broadly and moderately arcuate, the humeral denticle minute though evident; striae smooth and impunctate, strong and deep, the intervals rather strongly convex from suture to sides, not different on the flanks, the line of foveae uninterrupted; scutellar stria extremely short and very oblique; prosternal process obtuse and finely, strongly margined at tip; tarsi moderately long, very slender. Length (♂) 6.8 mm.; width 2.6 mm. California (locality unknown).....**fuchsi** Schf.
- 5—Body elongate, parallel, shining throughout and rather convex, red-brown in color; head relatively large, being three-fourths as wide as the prothorax, the impressions abrupt externally, gradually shallow internally, oblique; eyes well developed, moderately convex; prothorax as long as wide to a little longer, the sides broadly, subevenly arcuate, a little more rounding apically and slightly more converging basally, though rounded, to the obliterated and broadly rounded basal angles, the base finely margined, barely two-thirds the maximum width, the apex much wider than the base and having nearly the maximum width, evenly and moderately sinuate, with the angles rather obtuse and distinctly rounded; surface evenly convex, excessively finely margined at the sides, the depression short, linear but impressed, not attaining the base, the stria fine but rather deep, not quite entire; elytra short, oblong-oval, not quite one-half longer than wide, not distinctly wider than the prothorax (♂), the sides broadly arcuate, the apex rounded; striae impunctate,

moderately impressed, the scutellar very short, barely extending beyond the fovea, the intervals feebly convex; subapical marginal sinus almost obsolete; legs rather short, the tarsi very slender; prosternal intercoxal process not margined. Length (σ^7) 7.2-7.7 mm.; width 2.55-2.65 mm. California (Humboldt Co.—Arcata). Three examples..... *ovicollis* Schf.

The only one of the above species that can be compared with *longicollis* Lec., is *fuchsi*, and on direct comparison of the above described example of the latter, as identified from description, with the type of *longicollis* many years ago, I made this note: "Somewhat resembles *longicollis* but more robust and with a much slighter sinuation near the basal angles." In his original description of *longicollis*, LeConte states that it is piceous-black, elongate, subcylindric, with the prothorax rather convex, apparently somewhat longer than wide and with the sides rounded, posteriorly narrowed, striate at each side at base, the sides briefly sinuate before the small and prominent basal angles; elytra striate, with the intervals almost flat and the striæ moderately deep, impunctate, elongate, not wider than the prothorax, the scutellar stria very short; prosternal process not margined. Length 8.2 mm. Oregon. From the original description of *sphodrinus*, that species would appear to be allied as much to this group as to *adoxus*, but the size is somewhat larger and the geographic habitat widely different. *Arizonicus* Schf. may be attached provisionally to this group.

Group VII—*adoxus* Say.

The reasons for adopting this group rest almost as much upon habitat as habitus; it is the only group of the first division—having no dorsal elytral fovea—that occurs in the Atlantic regions of the continent, excepting a group possibly necessitated by *sphodrinus*, as implied above, and includes such forms as *adoxus*, *zephyrus*, *grandiceps* and *rostratus*, of strongly convex, somewhat ventricose form, highly polished, deep black integuments throughout and strongly convex stria intervals, these characters imparting a facies quite different from anything occurring in the Pacific regions. Omitting for the present *rostratus* and *grandiceps*, which differ from *adoxus* and allies in the very large head, the four species before me may be known as follows:

T. L. Casey, Mem. Col. IV, Oct. 1913.

Prothorax very moderately narrowed posteriorly, the base fully three-fourths the maximum width.....2

Prothorax strongly narrowed posteriorly, the base very distinctly less than three-fourths the maximum width.....3

2—Form more elongate and less ventricose, the elytra (♂) longer, fully two-thirds longer than wide and barely a third wider than the prothorax, the latter larger than in *adoxus* but of the same general form, except that the basal angles are distinctly rounded; elytra similar in striation, except that the scutellar stria is very short, being simply a posterior attenuation of the fovea; legs rufo-castaneous, the femora a little darker. Length (♂) 13.5–13.8 mm.; width 4.8 mm. New Jersey and Pennsylvania.....**rejectus** Lec.

Form less elongate and more ventricose; head moderate, the impressions rather fine but deep, arcuate and diverging; epistoma sinuato-truncate, the labrum rectilinearly truncate; prothorax nearly as long as wide, the sides rounded, gradually converging, becoming straight posteriorly, then broadly and very faintly sinuate to the angles, which are sharp and generally slightly prominent, the single latero-basal impression long, broadly and deeply concave, the stria distinct but not entire; apex very feebly sinuate, the angles scarcely advanced and well rounded; elytra (♂) only about one-half longer than wide and fully two-fifths wider than the prothorax, the scutellar stria long and deep. Length (♂ ♀) 11.5–14.0 mm.; width 4.0–4.8 mm. Rhode Island and Lake Champlain to North Carolina (Asheville). Fifteen examples. [*tristis* Dej. and *interfector* Newm.].

adoxus Say

3—Head smaller, less than three-fifths as wide as the prothorax, the impressions rather deep, arcuate though subparallel, the eyes larger than in *adoxus* but less convex; prothorax relatively still smaller, nearly as long as wide, the sides more strongly rounded, more converging posteriorly and becoming very deeply sinuate for a long distance before the angles, which are acute and laterally very prominent; base much more deeply sinuate; apex more sinuate, the angles less rounded; surface similarly convex, the impressions and median stria nearly similar; elytra still shorter, less than one-half longer than wide, two-fifths wider than the prothorax, the striae similarly very deep though not wholly unmodified as they are in *adoxus*, but faintly crenulate, the scutellar shorter but evident. Length (♂) 11.5 mm.; width 4.25 mm. Locality unrecorded.

zephyrus Csy.

Head as in *adoxus*, fully three-fifths as wide as the prothorax, the impressions similar, the eyes rather large, very convex; prothorax nearly similar, except as stated above, and in being slightly narrower and apparently somewhat longer than wide; elytra notably narrower and more elongate, evidently more than one-half longer than wide, fully two-fifths wider than the prothorax, the striae very deep, smooth and unmodified, the intervals very convex, the scutellar stria long. Length (♀) 11.3–12.5 mm.; width 4.4–4.6 mm. Wisconsin (Bayfield),—Wickham.....**tetricula** n. sp.

Rejectus is well distinguished from *adoxus* by its more elongate form, elongate elytra and larger prothorax, having the basal angles blunt though to a varying degree; it is principally distinct, however, in the very different scutellar stria, as described above. *Zephyrus* is widely distinct from any of the others in the large and deep ante-angular sinus at the sides of the prothorax and the very acute and laterally prominent angles, as well as the still shorter elytra, with feebly crenulate striæ, smaller head and general habitus. *Tetricula* is allied to *adoxus* rather closely, but may be distinguished at once by the narrower and more elongate outline, more posteriorly narrowed prothorax and longer elytra. As to *sustentus* and *subarcuatus*, of LeConte, I am unwilling to express an opinion in the absence of the types. A note which I made on viewing the type of *sustentus*, states that it is not *zephyrus*, the thoracic sides being much more strongly sinuate basally in the latter, and that *sustentus* is a valid species; its habitus must therefore be visibly different from that of *adoxus*. One female from an unrecorded locality before me is much stouter than any other example of *adoxus*, but does not seem to differ much otherwise, except in the obtuse and blunt basal thoracic angles; its dimensions are 12.8 by 5.0 mm.

The more systematic part of the present study of *Pterostichus* ends here, but allusion will be made to some other groups as follows:

Diligendus group.

This group begins a long series of *Pterostichids* having dorsal foveiform punctures on the elytra and they are more essentially peculiar to the Atlantic faunal regions; here there is but a single puncture on each elytron, situated behind the middle near the third stria, or between the second and third. Heretofore the group has been considered purely Atlantic in range, but the following species shows that it extends to the Pacific coast:

Pterostichus wrangelli n. sp.—Subparallel, moderately convex, shining, black, the elytra, under surface and legs with a piceous tinge, the trochanters and tarsi paler; head rather small, the impressions moderate, arcuately diverging, the eyes convex; labrum rectilinearly truncate; antennæ testaceous throughout; prothorax about a sixth wider than long, the sides rounded, converging posteriorly, becoming broadly though very distinctly sinuate toward the angles, which are right, very sharp and somewhat prominent or subverted; base feebly sinuate medially, margined laterally, nearly five-sixths the maximum width, the apex feebly

sinuate and with rather broadly rounded angles; surface rather depressed, flattened or subimpressed latero-basally, the inner impression moderately long but feeble, attaining the base, the outer obsolete, the lateral margins moderate, rather abruptly widening at base; elytra oblong, one-half longer than wide, parallel, with feebly arcuate sides and rather obtusely rounded apex, barely a fourth wider than the prothorax, the striae smooth and unmodified, deeply impressed, the scutellar very short, barely extending beyond the fovea, the intervals rather strongly convex throughout; fovea a little behind the middle, on the left midway between the second and third striae in the type, on the right near the third stria; lateral series of foveae not interrupted; prosternal intercoxal process obsolete margined at the sides, strongly so about the very broadly obtuse apex; legs moderate, the first two joints of the rather slender hind tarsi strongly grooved externally. Length (σ^7) 10.8 mm.; width 4.0 mm. Alaska (Fort Wrangell),—Wickham.

The last abdominal segment of the male has a fine but strong abrupt carina, extending not quite to the base, the summit of which is abruptly and sharply tuberculate at about the centre of the segment, the adjoining surface not impressed. This structure strongly recalls a corresponding sexual character in the comparatively gigantic species of *Holciophorus*. The type of this interesting species was found among numerous examples of *castaneus* Dej., from about the same region; it is a little larger and more parallel, but otherwise presents very nearly the same outward appearance.

The species described by the writer under the name *osculans*, proves to be the same as *diligendus* Chd. (Lec.) and indeed was so identified by Horn (Ent. Amer., I, 1885, p. 108); the single dorsal fovea had been unobserved in drawing up the original description. Some years subsequently Dr. Horn discovered, through Baron Chaudoir, that the true *diligendus* of that author, was the species named *mancus* by LeConte, rendering it necessary to find another name for *diligendus* Lec. nec Chd. An old MS name of LeConte was thereupon utilized by Dr. Horn for this purpose, and the name of LeConte's *diligendus* now appears in our lists under the name *apalachius* Horn (Lec. MS), wholly disregarding the fact that the name *osculans* had been given the species by the writer—necessarily to this species and none other, as, at the time Dr. Horn gave out his synonymy of *osculans*, there was no other interpretation of *diligendus* Chd., than that of LeConte, and also as it truly agrees with that interpretation (Proc. Acad. Phila., 1873, p. 305) in the male sexual characters, which are quite different from those of *mancus*. The name of the species with synonymy is therefore as follows:

Pterostichus osculans Csy.—Cont. Descr. and Syst. Col., N. A., Phila, 1884, Pt. 1, p. 2; *diligendus* Lec. nec Chd.—Proc. Acad. Phila., 1873, p. 305; *apalachius* Horn—Tr. Am. Ent. Soc., 1892, p. 41 (typographic error for *appalachius*).

While referring to typographic error, it should be stated that LeConte inadvertently misspelled the name of his *Pterostichus corrusculus* (l. c., 1873, p. 310), which should of course be *coruscus*. Mr. Frost recently sent me a specimen of this remarkably small *Pterostichus*, taken near Framingham, Mass., and some time before I had received from New Haven an example of a still more minute but otherwise somewhat similar species, though with shorter elytra and larger head, said to have been found in a box of nursery stock from England.

Stygicus group.

Of this conspicuous group of polished black, deeply striate, Atlantic species, my collection still lacks *superciliosus* Say and *agonus* Horn, but there are three species at hand that do not fit any of the descriptions thus far published; these are the following:

Pterostichus probus n. sp.—Oblong, elongate, convex, deep black and polished; head four-sevenths as wide as the prothorax, the impressions very large, broadly concave; labrum transverse, rectilinearly truncate; antennæ rather long, the tenth joint on the flat side nearly two and one-half times as long as wide; prothorax large, a fifth wider than long, somewhat obtrapezoidal, the sides rounded anteriorly, becoming oblique and straight in about basal half, the angles obtuse and rounded; base broadly sinuate medially, four-fifths the maximum width; surface convex, deeply concave and strongly reflexed along the side margins, the impressions broadly confluent, the concavity punctate, the lateral carina parallel with the sides and strong; median stria strong and entire; elytra nearly two-thirds longer than wide, distinctly wider behind the middle than at base and fully two-fifths wider than the prothorax, rapidly rounding behind to the subangular apex, the sides feebly converging and almost straight from about the middle to the slight humeral rounding, the denticle wholly obsolete; striæ very deep, finely punctulate along the bottom, the scutellar long and deep, the intervals all very convex and polished; tarsi long and notably slender, piceo-rufous. Length (♀) 18.0 mm.; width 6.4 mm. North Carolina (Asheville).

Allied to *coracinus* Newm., but differing in the more oblong, less convex, more rectilinearly basally narrowed elytra, longer and much more slender tarsi and in the form of the mentum tooth, this being moderately emarginate in *coracinus*, but sinuate half way to the base

in *probus*, with the sides in the form of thin vertical wings; the antennæ also are much longer.

Pterostichus erebeus n. sp.—Much smaller, more slender and very much less convex, similar in color and in the polished lustre, except that the tarsi also are black; head nearly similar, the labrum less transverse; antennæ shorter, the tenth joint a little less than twice as long as wide; prothorax but slightly wider than long, the sides almost evenly rounded from apex to base, more converging basally, the angles very broadly rounded, almost obliterated; base feebly sinuate medially and arcuate laterally, nearly four-fifths the maximum width; surface with feeble transverse wavy lines, strongly and deeply margined and reflexed at the sides, deeply striate along the middle, the basal impressions completely fused, forming a deep elongate-oval cavity, which is rugulose at the bottom, the carina strong but short, converging toward the edge posteriorly as in *adjunctus*; elytra oblong, rounded parabolically at tip, parallel, with very feebly arcuate sides, only very moderately convex, three-fifths longer than wide, nearly a third wider than the prothorax, the striæ deep, impunctate, the scutellar long and deep, joining the first as in the preceding and *coracinus* and perfectly continuous with the first stria, the basal part of which is detached; intervals very strongly convex; tarsi moderately long and slender. Length (♀) 14.0 mm.; width 4.8 mm. Wisconsin (Bayfield),—Wickham.

Allied to *coracinus* but very much smaller and differing also in the narrower form, much more flattened upper surface, still more broadly rounded thoracic angles and shorter, though strongly developed, carina. From *adjunctus* Lec., which I believe to be valid, it differs in the broadly rounded basal thoracic angles, narrower and less convex form, smaller size and many other features.

Pterostichus vapidus n. sp.—Oblong-oval, rather strongly convex, deep black and polished throughout, the tarsi piceous; head fully three-fifths as wide as the prothorax, the impressions rather deep and broadly concave; labrum truncate, with the angles rounded; tenth antennal joint (♂) twice as long as wide, the antennæ brown as usual; prothorax a fifth wider than long, nearly as in *coracinus*, but with the hind angles more rounded, the broadly confluent impressions forming a pit, punctured but with the central parts slightly convex, the carina almost similar; elytra very short, oval, two-fifths longer than wide, a third wider than the prothorax, the sides strongly arcuate; striæ deep, completely impunctate, the scutellar long and deep, joining the first without interrupting the latter; intervals convex; tarsi very slender. Length (♂) 12.5 mm.; width 4.8 mm. New York (Adirondack Mts.),—Prof. Kemp.

The left side of the prothorax at base, in the unique type, is distorted, the setigerous fovea in the hind angle being greatly enlarged, and the elytral striæ are distorted and irregular internally

though not externally, but I do not think that the peculiar brevity of the elytra, they being only equal in length to the head and prothorax combined, can be due to abnormality, as they are symmetrical in outline. This species differs very much from any other in general appearance, and, from any form of *coracinus*, in its absolutely impunctate striæ.

Of *coracinus*, there are a number of subordinate forms, mutually so closely allied, however, that it would require careful and detailed study, with very large material, to delimit and define them.

Ventralis group.

A few small species, having remarkably polished integuments and coarse and externally subobliterated, generally strongly punctate striæ, alone constitute this group; the dorsal foveæ are generally three in number. LeConte included *tumescens* in his most recent arrangement, but I think the general habitus of this species, and several others allied thereto which are at hand, having oblique thoracic impressions, should rather form part of *Evarthrus* than of *Pterostichus*. The following is allied to *ventralis*:

Pterostichus putus n. sp.—Form rather slender, moderately convex, polished throughout and testaceous in color; head rather short, moderate in size, the impressions short, deep and arcuate; labrum with rounded angles; prothorax about a fifth wider than long, the sides evenly and strongly rounded from apex to base, more converging basally, the angles very obtuse and rounded; base unmarginated, sinuate from side to side and narrow, but little more than half the maximum width; surface subevenly convex, very finely margined at the sides, the single latero-basal impression longitudinal, linear, not attaining the base; median stria very fine and feeble; elytra three-fourths longer than wide, not evidently wider than the prothorax, oblong-oval, with feebly arcuate sides and strongly rounded subparabolic apex, the striæ strong, moderately impressed, rather closely and conspicuously punctate, the seventh feeble, wholly obliterated before the middle, the scutellar subobsolete, hardly visible behind the fovea; intervals very moderately convex; tarsi rather short, very slender. Length (♂ ♀) 8.5–8.7 mm.; width 2.6–2.8 mm. Texas.

The abdomen is punctured irregularly toward the sides as in *ventralis*, from which *putus* may readily be distinguished by the narrower form, narrower thoracic base and finer side margins, the former sinuate throughout the width and not merely medially, as it is in *ventralis*, in the very much stronger, closer and more con-

spicuous strial punctures, less obliterated lateral striæ and still more vestigial scutellar stria, more slender tarsi and in general habitus to an appreciable extent.

Abacidus Lec.

The very peculiar habitus of this group probably warrants the retention of the name *Abacidus* Lec., but *Peristethus* Lec., should be regarded as synonymous. The characters given by LeConte for the separation of groups D and E of *Pterostichus* (Bull. Bk., 1882, p. 17) are repeated frequently in true *Pterostichus* and therefore should not be regarded as generic in this case. *Fallax* Dej., of which a pair was sent me by Mr. Manee, collected in North Carolina, is the type of *Abacidus* and a very strongly differentiated species, as is also *hamiltoni* Horn. I do not seem to have a single example of *sculptus*, which is said to be common in the South. The following is either a distinct species or a very remarkable modification of *permundus*; I feel disposed to adopt the former hypothesis at least provisionally:

Abacidus planifer n. sp.—Oblong-oval, feebly convex, the elytra broadly flattened medially, deep shining black throughout; head as in *permundus*; prothorax also as in that species, except that the outer impression is more oblique and that the entire surface is covered with a system of feeble transverse wavy lines, as in many California species of the *planctus* group; punctures on the deplanate side margins fine and sparse; elytra subequal in width to the prothorax, as in *permundus*, except that the striæ are completely impunctate and the intervals throughout perfectly flat; groove of the first hind tarsal joint fine, barely glimpsable and subobsolete; abdomen punctured and rugulose laterally; prosternal process margined behind as in *permundus*. Length (♀) 15.0 mm.; width 5.8 mm. Indiana.

The peculiar transverse wavy lines of the pronotum and the perfectly flat strial intervals, are the principal distinguishing features of this form, but I cannot judge of the constancy of these characters, having only a single example at hand.

Pœcilus Bon.

Lucublandus group.

The variations in form, color, convexity and lustre of the strial intervals, number of dorsal foveæ and size, among the numerous representatives of *lucublandus* Say, from various parts of the coun-

try, are very remarkable and one of these was named *Pterostichus manhattanis* by the writer many years ago; I am convinced that it is a synonym of that species, however, so far as evidence at hand is interpretable and as stated by Horn, but I think that that form which is so abundant in Utah—dark greenish-black, a little smaller and shorter than *lucublandus* and apparently named *fraternus* by Say—is a valid species; the prothorax is always much shorter and more transverse than in *lucublandus*. These species will constitute a well defined group of *Pæcilus* and in some ways, such as the structure of the pronotum, come between *Abacidus* and the next group, probably of more typical *Pæcilus*, although the three basal joints of the antennæ are similarly carinate.

Chalcites group.

Pæcilus is now generally accorded generic weight, so that the original name *chalcites*, given by Say to the species subsequently named *sayi* by Brullé, becomes valid. Two unnamed species have recently been received as follows:

Pæcilus snowi n. sp.—Elongate-suboval, moderately convex, shining, very dark violaceous-blue to obscure green in color; under surface and legs deep black; head small, half as wide as the prothorax (♂), a little less (♀), the impressions deep, parallel, broadly concave and separated by twice the distance of either from the sides; epistoma and labrum truncate; palpi black; antennæ black, the two basal joints largely testaceous, the carina of the three basal joints strong; prothorax a sixth to fifth wider than long, the sides evenly arcuate from apex to base, more converging anteriorly, the basal angles obtuse but minutely and denticularly prominent; base a fourth wider than the apex, fully seven-eighths the maximum width, margined except medially and transverse; surface convex, finely and abruptly reflexed at the sides throughout, the stria rather strong, subentire, the inner impression deep, sharply marked at the bottom and linear, the outer elongate-oval, very near the base, both impunctate; elytra oblong-oval, three-fifths to two-thirds longer than wide, rather flattened inwardly, the sides parallel, feebly arcuate, the apex subangularly rounded, scarcely a fourth wider than the prothorax, the striæ moderate, finely punctate, the scutellar long, the intervals only very feebly convex. Length (♂ ♀) 11.7–13.5 mm.; width 4.3–5.0 mm. Arizona (San Bernardino Ranch, Cochise Co.),—F. H. Snow.

Allied to *texanus* Lec., but differing in its narrower and more elongate form, much more elongate prothorax, darker and less brightly metallic coloration, less evident abdominal punctures and somewhat longer antennæ and hind tarsi. From *cyaneus* it differs

in its more anteriorly narrowed and less transverse prothorax, much larger eyes and longer scutellar stria.

Pœcilus pimalis n. sp.—Form rather stout, oblong, moderately convex, shining, metallic green, the anterior parts more obscure, the under surface black, the legs piceous-black; head small, barely more than half as wide as the prothorax, the eyes large, convex and prominent, the antennæ testaceous throughout, the three basal joints carinate; impressions rather long and sharply marked, diverging; prothorax a third wider than long, the sides evenly rounded from apex to base, the angles obtuse but minutely and denticularly subprominent; base a fifth wider than the apex, four-fifths the maximum width, transverse, the marginal groove broadly interrupted medially; surface moderately convex, very finely margined at the sides throughout, the stria very fine, far from entire, the inner impression rather shallow but sharply linear, flexed outward slightly basally, the outer very short and feeble; punctures wanting; elytra oblong, but little more than one-half longer than wide, parallel, with nearly straight sides, rounding at base and parabolic at apex, nearly a third wider than the prothorax; humeral denticle wholly obsolete; striæ rather abruptly deep, fine and feeble externally, finely punctate, the scutellar long and parallel; intervals feebly convex internally, flat externally, the sixth and seventh striæ subobsolete basally; tarsi rather long and slender. Length (♀) 11.0 mm.; width 4.4 mm. Arizona (Tuçson).

There appears to be no described species with which this can be closely compared. I obtained a single specimen in the suburbs of the town; the anterior tarsi are missing, but it appears to be a female.

Bothriopterus Chd.

The species of the *luczoti* group have a consistent habitus, differing materially from any type of *Pterostichus* preceding, and, as the above name now exists in the literature of the subject, it may as well be utilized to distinguish them in a generic sense. The species are rather numerous, but are deficient in structural diversity; they all have five or six strong elytral foveæ; those in my cabinet may be known by the following general characters:

Elytra strongly shining in both sexes. Body larger, stouter and more convex, black, the legs and antennæ black, the latter gradually brown apically; head moderate, the eyes prominent, the impressions somewhat vestigial, indistinct; labrum nearly black, the palpi pale testaceous; prothorax large, the sides evenly rounded from apex to base, the angles very obtuse, but slightly and obtusely prominent; sides rather narrowly but strongly reflexed; base equal in width to the apex; linear impression deep, having but few punctures scattered inwardly therefrom; elytra oblong, with broadly rounded sides

- and convex surface, about a fourth wider than the prothorax, the striæ punctulate, feebly impressed inwardly but not at all so externally, the five foveæ strong. Length (♀) 12.0 mm.; width 4.6 mm. Pennsylvania—LeConte. Locality not indicated in the Levette collection. Apparently not common. **pennsylvanicus** Lec.
- Elytra strongly shining in the male but more or less evidently sericeous in the female. 2
- 2—Converging sides of the prothorax becoming distinctly sinuate toward the basal angles. Body rather short in form, rather convex, shining, black, the legs dark rufo-piceous, the palpi piceous-black; antennæ brown distally; head fully three-fifths as wide as the prothorax, the eyes rather prominent, the impressions short but somewhat deep, distinct, diverging; prothorax not quite a third wider than long and much narrower than the elytra, the sides rounded, converging and sinuate basally, widest at two-fifths from the apex; angles right and very sharply defined, subprominent; base barely visibly wider than the apex; surface convex, rather abruptly though moderately reflexed at the sides, having many punctures basally, except medially, the linear impression deep, less than a third the total length; elytra barely one-half longer than wide (♀) to three-fifths (♂), oblong, with slightly rounded sides, a little wider behind the middle than at base, more than a third wider than the prothorax; surface polished (♂) or not strongly sericeous (♀), finely striate, the striæ feebly impressed suturally and basally, minutely, irregularly subpunctulate, the scutellar very long, nearly a fifth the total length. Length (♂ ♀) 10.5–11.2 mm.; width 4.0–4.2 mm. California (Lake Tahoe).
latescans n. sp.
- Converging thoracic sides oblique basally, feebly arcuate to straight, never distinctly sinuate. 3
- 3—Form stouter, the elytra always distinctly wider than the prothorax; female elytra sometimes very strongly sericeous and faintly brownish. 4
- Form more elongate and more parallel, the elytra never more than very slightly wider than the prothorax in either sex and never strongly sericeous. 7
- 4—Prothorax relatively rather large and less transverse, the oblique sides posteriorly generally feebly arcuate to the obtuse but minutely denticulate basal angles. Body unusually stout, oblong-suboval, black and strongly shining throughout (♂), or with the elytra brownish and strongly, subopaquely sericeous (♀); under surface and legs piceous or rufescent, the palpi testaceous; head developed, the impressions feeble and irregular; antennæ blackish-piceous; prothorax scarcely more than a fourth wider than long, the base and apex equal, the sides rather strongly rounded, widest near apical third; surface convex, rather thickly punctured laterally toward base, broadly and strongly reflexed at the sides, the linear impression deep and acute; elytra three-fifths (♂) to one-half (♀) longer than wide, oblong-oval, slightly widest behind the middle and nearly a third wider than the prothorax, rather finely striate, the striæ faintly and closely, minutely and irregularly punctulate, more

- impressed inwardly as usual, the scutellar long. Length (σ^7 ♀) 11.0–11.7 mm.; width 4.3–4.6 mm. Lake Superior. [*orinomus* Kirby nec Steph.] **oblongonotatus** Say
- Prothorax relatively smaller and shorter, the oblique sides posteriorly straight or nearly so. 5
- 5—Body larger and much stouter, nearly as in the preceding. Color black throughout, the antennæ and palpi rufo-piceous; surface shining, the elytra (♀) very strongly sericeous; head moderate, the impressions feeble but evident, nearly straight; labrum black; mandibles feebly rufescent basally; prothorax nearly two-fifths wider than long, the sides rounded; base feebly arcuate, equal in width to the apex, the angles very obtuse, the subprominent denticulation extremely feeble; surface and the rather broad margins nearly as in the preceding; elytra relatively much larger, one-half longer than wide, almost one-half wider than the prothorax and three times as long, oblong, the striæ very fine and unimpressed throughout the width, very feebly and minutely irregular, the scutellar rather long, the first evenly bifurcating basally. Length (♀) 11.8 mm.; width 4.65 mm. Oregon (Clackamas Co.) **sericeus** n. sp.
- Body smaller, rather less broad in form, the elytra of the female only feebly sericeous. 6
- 6—Upper surface very moderately convex, shining; color deep black, the legs black, the palpi piceous with the tip pale; head moderate, the eyes rather large and prominent, the impressions distinct, arcuate and diverging; labrum black; mandibles still shorter than in the preceding, often rufescent; prothorax fully a third wider than long, the sides rounded; angles obtuse but sharply defined, sometimes very minutely subprominent; base transverse, barely as wide as the apex; surface with a moderate patch of close punctures latero-basally and with the linear impression rather short but deep, the side margins unusually deeply and strongly channeled and reflexed; elytra three-fifths longer than wide, polished, a little shorter and evidently, though not very strongly, sericeous in the female, about a fourth wider than the prothorax, the striæ fine, gradually moderately impressed suturally (σ^7) or very fine and unimpressed throughout (♀). Length (σ^7 ♀) 9.2–10.7 mm.; width 3.2–3.9 mm. Alaska (Fort Wrangel),—Wickham; British Columbia (Metlakatla),—Keen and California (Siskiyou Co.),—Koebele. [*vitreus* Dej., *seriepunctatus* Mann. and *oblongiusculus* Mots.]. Abundant. . . **adstrictus** Esch.
- Upper surface more convex, black, shining, the legs slightly picescent, the palpi pale piceo-testaceous; antennæ brown, blackish at base; labrum black; head moderate, with prominent convex eyes, the impressions somewhat broad and ill-defined though rather deep; mandibles small; prothorax less transverse than in *adstrictus*, nearly a third wider than long, the sides almost evenly rounded from apex to base, the angles obtuse but minutely and acutely subprominent, the base transverse, barely as wide as the apex; side margins much less widely reflexed or deeply channeled than in *adstrictus*, the punctures and impressions nearly similar; elytra nearly similar but a little more elongate, a fourth to nearly a third wider than the pro-

thorax, the striæ fine and very feebly, irregularly quasi-punctulate as usual, barely at all impressed suturally even in the male as a rule, the scutellar long, generally not joining the first; lustre strongly shining though very faintly alutaceous (σ^7) or but little more evidently so (φ), this character being less developed than in any of the preceding species. Length ($\sigma^7 \varphi$) 9.8–11.2 mm.; width 3.6–4.0 mm. California (Truckee, near Lake Tahoe, elev. about 6000'). Abundant. *latebricola* n. sp.

- 7—Elytra feebly æneous in lustre. Body rather narrow and elongate, moderately convex, very shining, black, the legs feebly picescent, the palpi rufo-piceous, rufous distally; antennæ blackish-piceous, gradually brownish distally; head moderate, the impressions not deep and somewhat diffuse; labrum black, with rather broadly rounded angles; prothorax a third to two-fifths wider than long, the sides moderately rounded, generally somewhat arcuate to the minutely prominent though obtuse basal angles, the base feebly sinuate medially, fully as wide as the apex or a little wider; surface convex, only moderately punctured latero-basally, the sides rather deeply concave and reflexed but not very wide, the impressions strong and the basal marginal groove at the sides deep; elytra rather long, two-thirds (σ^7) to three-fifths (φ) longer than wide and respectively a sixth to nearly a fourth wider than the prothorax, the striæ fine, not noticeably impressed in either sex even suturally, those on the flanks so fine as to be almost obsolescent; lustre shining (σ^7) or very faintly sericeous (φ), the scutellar stria very long, joining the first. Length ($\sigma^7 \varphi$) 10.5–11.0 mm.; width 3.4–3.8 mm. Labrador (W. St. Modest),—Sherman; Rhode Island and Arkansas. Newfoundland—Dejean (type locality). Females rather rare. *luczoti* Dej.

Elytra not at all æneous in lustre; species of the western faunal regions. . 8

- 8—Striæ strongly impressed, the intervals notably convex, gradually a little less so apically. Body black, shining; head moderate, the impressions rather deep but irregular; mandibles finely, closely strigose medially; palpi testaceous, piceous basally; prothorax about a fourth wider than long, the sides rounded, moderately oblique and straight posteriorly, the angles obtuse but denticularly prominent; base not quite so wide as the apex; surface convex, rather broadly and deeply channeled and reflexed at the sides, the basal punctures and impressions about as usual in the preceding; elytra three-fifths longer than wide, only a fourth or fifth wider than the prothorax, parallel, the sides feebly arcuate; striæ impunctate, the scutellar long and as deep as the others; surface excessively faintly alutaceous, the micro-reticulation visible but not strong; tarsi moderately slender. Length (σ^7) 11.0 mm.; width 4.0 mm. California (Siskiyou Co.),—Koebele. *shastanus* n. sp.

Striæ feebly or very moderately impressed as usual. 9

- 9—Body elongate, convex, subparallel, deep black, polished, the legs scarcely paler, the palpi rufo-piceous; head moderate, the impressions fine, feebly arcuate, distinct and regular or nearly so; prothorax only a fourth to fifth wider than long, the sides broadly and moderately rounded, oblique and feebly arcuate to nearly straight basally, the

angles obtuse, obtusely subprominent; base equal in width to the apex, four-fifths the maximum width; surface convex, the lateral concave margin moderate, the latero-basal punctures unusually few and fine, the median stria and longitudinal impressions strong; elytra parallel, fully three-fifths longer than wide, a little shorter (♀), a fourth to fifth wider than the prothorax (♂), slightly more (♀), the lustre respectively polished or feebly sericeous, the striæ fine, irregularly subpunctulate. Length (♂ ♀) 11.0-11.8 mm.; width 4.0-4.3 mm. Rocky Mountains, from Arizona to Idaho. Abundant in Boulder Co., Colorado. The female much less common than the male. **saxatilis** n. sp.

Body shorter in form, similar in coloration and lustre in both sexes; head nearly similar; palpi testaceous throughout; prothorax much shorter and more transverse, fully a third wider than long, the sides strongly rounded, more strongly converging and nearly straight posteriorly, the angles very obtuse but not rounded and rendered somewhat prominent by the puncture in the bead; base distinctly narrower than the apex and two-thirds to three-fourths the maximum width; surface convex, with rather deep stria and impressions and a larger and denser patch of punctures latero-basally than in the preceding, the sides similarly reflexed; elytra shorter, one-half longer than wide and not wider than the prothorax (♂), or slightly shorter (♀), the lustre and striation as in the preceding, except that the striæ are less evidently, in fact scarcely at all, punctulate, the scutellar stria long. Length (♂ ♀) 10.7-11.7 mm.; width 3.75-4.2 mm. Colorado—Levette collection. **laxicollis** n. sp.

In the long series of *adstrictus* before me, there is some diversity; the Fort Wrangel examples, for instance, are a little larger and very slightly more elongate than those from Metlakatla, and the single Siskiyou specimen, which is a male, has somewhat shorter and more posteriorly dilated elytra. It would be exceedingly difficult to work out all the taxonomic forms in this genus, and those named above are the only ones that are obviously distinct by reason of form, sculpture or lustre, combined with habitual environment. This diversity in the *adstrictus* type might have been inferred from the many names already given, there being some published that are not mentioned in the table, such as *alternatus* and *obtusangulum* Mots., *motschulskyi* Mäkl., and *sexpunctatus* Mann. The synonymy given above under *adstrictus* is taken from the recent European catalogue of Heyden, Reitter and Weise. The type of *vitreus* Dej., was from Kamtschatka, and Dejean says nothing about the sides of the prothorax being slightly sinuate behind, with the hind angles right, as stated by LeConte. The separation, also, of

luczoti from *vitreus* and *orinomus* Kirby, by the form of the thoracic side margins appears to me to be impracticable.

The species placed here by LeConte under the name *Pterostichus oregonus* (Proc. Acad. Phila., 1861, p. 339) is black, shining, the elytra opaculate in the female, the prothorax not at all shorter than wide, the converging sides subsinuate posteriorly and the sides finely margined; hind angles nearly right, the latero-basal punctures sparse and with the impression rather long, the elytral striæ fine and impunctate, the intervals flat, the foveæ five in number and the length 13.7–14.5 mm. It is said to resemble the eastern *adoxus* very closely and has the thoracic margin no wider than in that species. It must be a very exceptional type in the genus and is unknown to me at present.

Piesmus Lec.

The type of this genus is the *Feronia submarginata* of Say, which is placed as a synonym of *monedula* Germ., in the Munich catalogue, among the chaotic mixture called *Platysma*. I have in my collection two species of *Piesmus*, one from North Carolina, more elongate, with moderately impressed though coarse striæ, which are distinctly but not extremely punctured, which is the true *submarginatus*, and the other, from Florida, having distinctly shorter elytra, the striæ of which are extremely coarse, in fact sulciform and still more coarsely and conspicuously punctured, which may be regarded as *monedulus* Germ. There is therefore no necessity for considering Say's species a synonym, or even as a variety of *monedulus*.

Lophoglossus Lec.

The peculiar habitus of the species of *Lophoglossus* is consistent throughout and quite distinct from that characterizing any of the foregoing Pterostichid types, being remindful however in this respect of *Bothriopterus* and *Piesmus*, so that it may be regarded as one of the groups of the *Platysma* series. The body is oblong, subparallel, only moderately convex, very polished, black as a rule, with transverse prothorax and three dorsal foveæ on the elytra. The prothorax is strongly and conspicuously margined at the sides, the latter becoming gradually oblique and usually broadly sinuate posteriorly. The species are moderately numerous, the six in my collection at the present time being easily recognizable as follows:

- Elytral striæ deep and very distinct throughout the length, never more than slightly stronger basally than apically. 2
- Elytral striæ very much finer and feebler apically than basally; body not so large; elytra polished in both sexes. 3
- 2—Body large and broad, deep black and very shining, the elytra in the female opaque; legs, antennæ and palpi black; head large, the impressions long, very deep and straight; epistoma and labrum sinuate; mandibles smooth; prothorax transverse, one-half wider than the head, nearly one-half wider than long, the sides rounded, converging and becoming straighter basally, the angles abruptly right and prominent; base sinuate medially, wholly unmarginated, four-fifths the maximum width; surface broadly and feebly convex, broadly channeled and strongly reflexed at the sides, the anterior transverse impression acute and lineiform, the posterior obsolete, the median stria deep, subentire, the latero-basal impressions very deep, broadly confluent basally, the inner extending for two-fifths from the base, having a few fine scattered punctures; elytra oblong, two-fifths wider than the prothorax, one-half longer than wide, the sides parallel and feebly arcuate, the tip broadly, obtusely rounded; striæ very fine but deeply impressed, minutely punctulate, the seventh finer than the others but distinct throughout, the scutellar long and deep, the intervals rather convex, feebly so externally, the humeral denticle obsolete; under surface finely punctured laterally. Length (♀) 22.2 mm.; width 8.3 mm. Missouri (St. Louis).
haldemani Lec.
- Body smaller and relatively narrower, shining in both sexes, black; palpi black, the antennæ brown, black basally; head rather large, the eyes prominent; impressions deeply concave and straight but much shorter than in the preceding; prothorax transverse, fully two-fifths wider than long, two-fifths wider than the head, the sides rounded, moderately converging and becoming gradually rather deeply sinuate basally, the angles right, slightly everted and prominent; base fully five-sixths the maximum width; surface rather depressed, the stria and transverse impressions as in the preceding, the lateral margins more abruptly and much less widely reflexed, the confluent basal impressions deeply concave, with but few punctures, the inner extending less anteriorly than in *haldemani*; elytra longer, fully three-fourths longer than wide, barely a third wider than the prothorax, parallel, with feebly arcuate sides, the striæ less fine, impunctate and very deeply impressed throughout the length, the seventh feebler but distinct throughout, the intervals very convex; middle tibiæ (♂) with the subapical inner tooth small though acute and erect, the apical process obsolete; last ventral evenly rounded and minutely margined throughout, the median sinus almost completely obsolete. Length (♂) 17.8 mm.; width 6.0 mm. New York. [*complanatus* Dej., and *strenuus* Lec.] *tartaricus* Say
- 3—Elytral striæ distinct though fine posteriorly, with the intervals there feebly but perceptibly convex; body much broader in form, with the head larger. Form oblong, feebly convex, polished, black; head well developed, with very prominent eyes, the impressions

deep, broad and straight, extending posteriorly to a line through the middle of the eyes; prothorax a third wider than the head, fully two-fifths wider than long, the sides rounded, moderately converging posteriorly, becoming gradually very broadly and feebly sinuate, the hind angles right and rather sharply marked; base fully three-fourths the maximum width; surface rather depressed, the transverse impressions as in the preceding, the stria deep; confluent impressions forming a deep concavity, which is scarcely at all punctured, the inner and outer impressions more or less lineiform, separated by a feeble convexity at the bottom of the concavity, the inner not extending anteriorly more than slightly; lateral margin deeply but not widely concave except basally, where it becomes broad as usual; elytra short, oblong, less than one-half longer than wide, fully two-fifths wider than the prothorax, the striæ finely, very indistinctly punctulate, deeply impressed basally, where the intervals are very convex; seventh stria subobsolete throughout the length; male with the subapical denticle of the middle tibiæ very slender, small in size, the apical process obsolete; last ventral evenly rounded and with very fine marginal bead, having a small broad and scarcely visible median sinuation. Length (σ^7 ♀) 15.0-17.7 mm.; width 5.8-6.6 mm. Indiana and Illinois. Cleveland, Ohio—LeConte.

scrutator Lec.

Elytral striæ very fine, with flat intervals posteriorly, the body smaller in size and of narrower and less depressed form 4

4—Form moderately elongate and convex, polished and deep black throughout in both sexes, the tarsi piceous; antennæ dark brown, blackish basally, the palpi rufo-piceous; head rather large, with very prominent eyes, the impressions finer and shallower than in *scrutator*, arcuate and not extending to the middle of the eyes; labrum sinuato-truncate; prothorax formed nearly as in the preceding but with the sides posteriorly not sinuate, being straight or very feebly arcuate nearly to the angles, where there is a scarcely perceptible sinuation, the angles very obtuse but denticularly prominent, the base three-fourths the maximum width; surface very feebly convex, the median stria and anterior impression as in the preceding, the marginal gutter and reflexed edge conspicuous, the basal impressions linear, not confluent, the concavity including them shallow, impunctate; elytra oblong, three-fifths longer than wide, only very slightly and not evidently wider than the prothorax (σ^7), a little wider (♀), the sides feebly arcuate; apex strongly rounded; striæ moderate, finely and obscurely punctulate, deeply impressed basally at the sides, to near the middle suturally, elsewhere very fine and unimpressed, the seventh almost completely obsolete, the scutellar long and deep; intervals convex basally; male with the subapical spine of the middle tibiæ acute and distinct, the apical process feeble but evident, sharply angulate; last ventral more narrowly rounded than in the preceding, with a broader flattened marginal beading and a narrower, deeper and very distinct median sinus. Length (σ^7 ♀) 15.0-15.7 mm.; width 5.2-5.75 mm. Illinois *illini* n. sp.

T. L. Casey, Mem. Col. IV, Oct. 1913.

Form and general characters almost as in *illini* throughout, including the male sexual characters, except that the apical acute process of the middle tibiae is a little stronger and more prominent, but having a stouter body, with broader elytra, only one-half longer than wide and fully a third wider than the prothorax, the striae being more distinctly punctate, more obsolete apically and with the intervals everywhere flat or very nearly so even basally and suturally, though the striae become a little more distinct in the corresponding regions indicated in *illini*. Length (σ^7) 16.0 mm.; width 6.0 mm. Indiana (Levette collection).....**bispiculatus** n. sp.

Form narrower than in *illini*, the size smaller; surface extremely shining, deep black, rather convex, the tarsi piceous; palpi obscure testaceous, the antennae nearly black, becoming slightly pale near the apex; head well developed, the eyes large though not quite so prominent as in *illini*, the impressions similar but deeper and broader; labrum much narrower; prothorax only about a third wider than long, the sides rounded, converging posteriorly, becoming gradually very distinctly sinuate, the angles nearly right and very sharp but only feebly prominent; base as wide as the apex and three-fourths the maximum width; surface rather convex, throughout nearly as in the two preceding; elytra three-fifths longer than wide, about a fifth wider than the prothorax, oblong, parallel, with feebly arcuate sides and well rounded apex, the striae and intervals nearly as in *illini*, except that the striae punctures are more distinct and that both the sixth and seventh striae are subobsolete throughout the length; male with the subapical tibial spine sharp though small, the apical process obsolete; last ventral more broadly rounded than in *illini*, with a finer marginal bead and with the sinus similarly very narrow but extremely feeble. Length (σ^7) 13.7 mm.; width 4.8 mm. Connecticut (Lyne),—A. B. Champlain.....**vernix** n. sp.

Possibly *bispiculatus* may prove to be rather a subspecies of *illini* than a fully distinct species, but its appearance is quite different. *Gravis*, of LeConte, is the only known species not included in the above table; it is described as being black, moderately shining, the elytra of the male less shining; form and sculpture as in *tartaricus*, except that the sides of the prothorax are simply rounded, not at all sinuate near the hind angles, which are obtuse; the lateral margin is rather more widely reflexed behind and the length of the unique male type, which is in the Horn collection and probably taken in Pennsylvania, is 19 mm.

Diplochila Brullé.

In my former review of this genus (Ann. N. Y. Acad., IX, p. 347), the species at hand were not all correctly identified, reliance having been placed too readily upon ostensibly accurate identifications in

certain collections with which they had been compared. Referring to the original descriptions and measurements, it becomes apparent at once that I do not have *impressicollis* or *laticollis* at all; the former is a small species 12 by 5 mm. in size, and has more distinct transverse thoracic impressions than the others; the latter is about 14 mm. in length. It should be said in this connection that certain past studies in this genus have been especially superficial in the endeavor to reduce the number of species; some of the proposed synonymy, such as the association of *assimilis* with *laticollis* and *striatopunctatus* with *impressicollis*, will fail to bear the light of reason. *Major* is abundantly distinct from the other hitherto published species in its large size, cephalic characters and in other respects; it bears no resemblance to *laticollis*, other than in generic facies and is not by any means a subspecies. The type locality of *laticollis* Lec., is Syracuse, N. Y., and the Austin, Texas, specimen representing it in my former study does not seem to accord very well with the description given by LeConte. The size of the head in this genus differs among the various species nearly as in *Dicælus*; in *planulata* and *nupera*, for instance, it is relatively very small in comparison with *expansa*, being scarcely half as wide as the prothorax. The hind angles of the prothorax are sharply defined and a little more than right throughout in the species here defined. The species are moderately numerous, though less so than in *Dicælus*; those represented in my cabinet may be separated as follows:

- Large species, not under 17 mm. in length; head large, always distinctly more than half as wide as the prothorax.....2
 Smaller species, never over 15 mm. in length, the head relatively smaller as a rule.....3
 2—Form broadly oval, feebly convex, deep black and shining; head large, fully three-fifths as wide as the prothorax, the anterior impression large, extending half way to the base; labrum deeply emarginate, the bottom of the sinus rounded; antennæ slender, of the usual form; prothorax large, three-fourths as wide as the elytra, less than three-fifths wider than long, but little narrowed apically, the sides broadly rounded, becoming feebly convergent and straight or broadly and very feebly sinuate basally; surface with the stria—somewhat abbreviated apically and basally as usual in this group of the genus—distinct, the posterior impressions at outer fourth deep, longitudinal and linear, the surface thence to the angles broadly subdepressed; elytra oblong, with broadly arcuate parallel sides, nearly one-half longer than wide, the striæ usually punctulate, fine and feebly impressed, the sixth almost and the seventh completely obliterated;

- intervals broad, nearly flat. Length 19.0-21.0 mm.; width 8.0-8.7 mm. Iowa (Keokuk)..... **expansa** n. sp.
- Form narrower and more convex, deep black and shining; head much less large, although distinctly more than half as wide as the prothorax, the impression and the labrum nearly similar; prothorax much shorter and relatively wider, three-fifths to two-thirds wider than long, in form and impression nearly similar, fully four-fifths as wide as the elytra, the latter two-fifths to one-half longer than wide, oblong, with broadly arcuate sides, the striae feebly punctulate, rather fine but deeply impressed internally, becoming finer and feeble externally, the fifth very feeble, the sixth nearly, the seventh quite, obliterated, the single interstitial puncture as usual. Length 17.0-18.2 mm.; width 7.2-7.3 mm. Kansas..... **oblonga** n. sp.
- Form oblong-oval and less elongate, broadly and distinctly convex, black and shining; head distinctly less large, only a little more than half as wide as the prothorax, the impression nearly similar, the labrum however more angularly emarginate; antennae very slender as usual, testaceous except basally; prothorax much shorter and more narrowed anteriorly, nearly three-fourths wider than long, three-fourths as wide as the elytra, otherwise nearly similar; elytra oblong, with feebly arcuate, parallel sides, about one-half longer than wide, the striae not punctulate but almost exactly as in *expansa*, from which it differs in the shorter, broader, more anteriorly narrowed prothorax and more triangularly, broadly emarginate labrum and distinctly shorter antennal joints distally in the female. Length 18.5 mm. width 7.9 mm. Louisiana..... **major** Lec.
- 3—Elytral striae obsolescent laterally; head relatively small; elytra wholly black.....4
- Elytral striae distinct throughout, the head relatively large, the strial intervals alternately black and dark rufo-testaceous.....5
- 4—Cephalic impression broad, formed nearly as usual and broadly truncate behind, the head barely at all more than half as wide as the prothorax; labrum broadly, angularly incised, the incisure asymmetric in position somewhat as in *major*; antennae slender, the joints a little shorter than usual; prothorax nearly three-fifths wider than long, much narrowed anteriorly, with rounded sides, the apex barely three-fourths as wide as the base, the impressions as usual, the surface rather more declivous at the sides but not at all reflexed and with a very fine marginal bead; elytra oblong-oval, with unusually arcuate sides, fully two-fifths wider than the prothorax, convex, the striae for the greater part impunctate, deeply impressed, with convex intervals internally, the first five strong, the sixth feeble and seventh almost obsolete, vestigial, the single fovea of the third interval well developed. Length 14.5 mm.; width 6.0 mm. Kansas..... **cliens** Csy.
- Cephalic impression broad but posteriorly arcuate in outline, the labrum more obtusely, angularly emarginate, the antennal joints longer and more slender; head small, half as wide as the prothorax, the eyes prominent; prothorax moderately transverse, a little more than one-half wider than long, much narrowed anteriorly, with obliquely

rounding sides, widest behind the middle, the apex barely two-thirds as wide as the base, the sides not reflexed, having a very fine marginal bead; surface between the longitudinal impressions and the angles with a very faint oblique impression joining the longitudinal one at base; elytra short, oblong, with feebly rounded sides, scarcely two-fifths longer than wide, the surface broadly flattened, rapidly and convexly declivous at the sides, the striæ deeply impressed, with convex intervals internally, gradually feebler externally, finely, very obsoletely punctulate, the first four deep, fifth abruptly much more feeble, sixth and seventh equal, barely traceable and virtually obsolete, vestigial; single fovea of the third interval unusually feeble, barely discoverable. Length 14.8 mm.; width 6.0 mm. Texas (Austin). [*laticollis* Csy. nec. Lec. olim] **planulata** n. sp.

Cephalic impressions not confluent, very small, at the apical margin and widely separated; head small, half as wide as the prothorax, the labrum very obtusely, angularly emarginate, the antennal joints shorter than usual but very slender; prothorax fully one-half wider than long, much narrowed at apex, widest a little behind the middle, the sides anteriorly oblique and unusually feebly arcuate; surface with the longitudinal impressions deep, a little within outer fourth, without supplemental impression, the sides declivous to the marginal bead throughout, the latter excessively fine; median stria fine, feeble though entire; elytra oblong, with feebly arcuate sides, a little more rounding at base, a third wider than the prothorax, almost one-half longer than wide, the striæ coarse, deeply impressed and basally punctate internally, the fifth, sixth and seventh obsolete, the third and fourth obliterated basally and apically; third interval with two small foveæ, instead of the usual single fovea. Length 9.7 mm.; width 4.2 mm. Florida (Lake Worth). **nupera** Csy.

5—Form more elongate than usual, evenly and distinctly convex, subalutaceous; head with rather large and prominent eyes, almost two-thirds as wide as the prothorax, with the two impressions moderately small and partially confluent at the apex of the front; labral notch obtusely angulate; antennal joints rather long and slender; prothorax barely more than one-half wider than long, but little narrowed at apex, the sides subparallel, widest but little before the middle, moderately and unusually evenly arcuate from apex to base; impressions nearly as in the preceding, the margins however distinctly concave and reflexed, very finely basally, more broadly apically, this being a reversal of the general rule; elytra oblong, more elongate than in any other species, parallel, with feebly arcuate sides, nearly one-half wider than the prothorax, almost three-fifths longer than wide, the striæ fine, feeble and finely punctate though equal and very distinct throughout the width, the intervals very nearly flat. Length 14.0 mm.; width 5.9 mm. Wisconsin (Bayfield).

alternans Csy.

The characters separating the small species are relatively more radical than those apparent among the larger ones, but there can

be little or no doubt of the validity of the latter as described. The asymmetry of the labral notch has seemingly not been noticed before; there is also considerable diversity in the form of this notch. Sexual differences, aside from those affecting the anterior tarsi, are slight. *Alternans* is remarkable in having the elytral striæ almost equally distinct throughout the width, *nupera* in having most of the striæ obsolete, the first and second being the only entire ones and also in having two interstitial foveæ instead of the usual one; *planulata* is strikingly distinct in form and in the very feeble, almost obsolete single interstitial fovea, and the labral notch of such species as *expansa* and *oblonga*, with its subparallel sides and narrowly rounded bottom, is also very exceptional.

Dicælus Bon.

In this genus a considerable number of undescribed species have accumulated since the last systematic work was published. In the *furvus* group, for example, we have the two following:

Dicælus carolinensis n. sp.—Elongate-oval, moderately convex, rather stout, deep black and opaque throughout; head actually but not relatively large, scarcely more than half as wide as the prothorax, minutely rugulose, the two anterior impressions moderate; antennæ but little longer than the head and prothorax, black, gradually attenuated and brown distally; prothorax fully a third wider than long, the sides gradually converging and broadly, almost evenly arcuate from base to apex, the latter deeply and evenly sinuate and about three-fifths as wide as the base, which has the usual form, the median truncate and retracted part one-half the maximum width; surface feebly convex, broadly and strongly reflexed at the sides, with an obliquely, anteriorly arcuate impression at each side, from near the basal angle to two-fifths from the base at inner two-fifths, the two impressions faintly connected transversely by the very feeble subbasal impression, the subapical also very feeble, the median stria distinct; lateral edges even, fine anteriorly, thickened basally; lustre opaque, the sculpture consisting of very fine short dense and generally longitudinal rugulæ, arranged in transverse wavy lines, confused laterally and basally; elytra oblong-oval, a little wider than the prothorax, scarcely more than a third longer than wide, parabolically rounded behind from near the middle, the sides very feebly arcuate; striæ very deeply impressed, not in the least punctate, the intervals convex and subequal throughout, the humeral carina strong and acute, long, gradually disappearing posteriorly. Length 22.5 mm.; width 9.2 mm. North Carolina (Southern Pines),—Manee. A single male.

There is no species known to me with which this can be compared very satisfactorily; it is much larger than *furvus*, and the sides of the prothorax converge almost evenly from base to apex.

Dicælus subtropicus n. sp.—Small in size, rather narrowly oval, deep black and opaque throughout; head rather short, evidently more than half as wide as the prothorax, smooth, the obsolete rugulosity excessively minute, the anterior impressions distinct, prolonged obliquely along the sides of the epistoma; antennæ rather short, filiform, not attenuated but brown distally; prothorax a third to fourth wider than long, parallel, arcuately and moderately narrowing apically, the median part of the base more than half the maximum width and feebly sinuate; surface nearly flat, rather narrowly but distinctly reflexed at the sides, gradually a little more broadly basally, the edge even and fine throughout, having, near inner two-fifths and basal third at each side, a fine longitudinal impressed line, extended by broad and feeble impression obliquely to the base near lateral fourth, and also anteriorly for a long distance, the basal and apical transverse impressions almost obsolete; median stria fine but evident; lustre opaque, the sculpture excessively minute and not distinct, not at all rugose; elytra but very slightly wider than the prothorax, two-fifths (♀) to one-half (♂) longer than wide, more gradually and less obtusely rounded behind in the latter sex, the sides feebly arcuate; striæ very deeply impressed, finely but very distinctly punctate; intervals strongly convex, the alternate ones distinctly broader and more convex but not at all cariniform, the humeral carina acute but only moderately prominent, gradually obtuse and obsolescent posteriorly. Length 13.0–14.5 mm.; width 5.0–5.7 mm. Florida (Palm Beach),—Kinzel. Six examples.

Differs from both *ovalis* and *fervus* in its narrower form, thoracic impressions and alternately distinctly wider and more convex strial intervals, also in the evidently punctate striæ, the punctures laterally somewhat indenting the sides of the intervals, as in *crenatus* though less strongly.

Dicælus debiliceps n. sp.—Elongate and slender, subopaque, deep black throughout; head smaller than in any other species, less than half as wide as the prothorax, smooth and rather shining, the sculpture vestigial and faint; anterior impressions deep, oblique; antennæ slender, filiform; prothorax not distinctly shorter than wide, the sides broadly, subevenly arcuate, converging a good deal anteriorly, becoming parallel toward base, the surface throughout and the two anterior marginal punctures nearly as in *elongatus* and *simplex*, the apex relatively more narrowed than in either; elytra two-thirds longer than wide, gradually arcuately narrowing behind from near the middle, at which point they are very slightly wider than the prothorax, moderately convex, the striæ rather fine and only very moderately deep, the intervals equal and broadly, feebly convex, the humeral carina as in *elongatus*. Length (♀) 14.7 mm.; width 5.65 mm. Pennsylvania (Buena Vista Spring, Franklin Co.).

This species belongs to the *elongatus* series and resembles it closely in general characters, but it is smaller and very much more slender, with a relatively still smaller head and more equal and very much

flatter stria intervals; from *simplex* Dej., which it more nearly resembles in the small head, it differs in its more elongate form, still slightly smaller head, more apically narrowed prothorax, more elongate elytra and flatter stria intervals; *simplex* is not identical with *elongatus*, being smaller, with more abbreviated elytra and smaller head.

Dicælus ovipennis n. sp.—Elongate, rather slender and feebly convex, somewhat shining, the elytra alutaceous, deep black throughout; head elongate, relatively large, nearly as in *teter* but with still more elongate neck and smaller apical impressions, two-thirds as wide as the prothorax, the latter relatively small, a fourth wider than long, in general form, impressions and sculpture nearly as in *teter*, but with more evenly arcuate sides, widest at the middle and not before the middle as it is in that species; elytra relatively much more inflated, evenly oval, with arcuate sides, widest at the middle and nearly one-half wider than the prothorax, one-half longer than wide, the striæ, intervals and humeral carina as in *teter*. Length (♂) 17.0 mm.; width 6.4 mm. North Carolina (locality unrecorded).

Allied rather closely to *teter* but differing very greatly in general facies, because of its small parallel prothorax, with evenly rounded sides, and the inflated elytra; the anterior tarsi of the male are less dilated than in that species, the middle tarsi shorter, the second palpal joint longer and the fourth shorter; the micro-granulation of the elytra is less fine and stronger, so that the surface is more opaque, especially at the sides.

Dicælus angustus n. sp.—Form and facies nearly as in *politus*, the integuments similarly deep black and polished; head and prothorax relatively a little larger, the latter flatter and more nearly as long as wide, much less distinctly narrower than the elytra, the impressions nearly similar but the side margins anteriorly are less narrowly reflexed; elytra broader, one-half longer than wide, barely a fourth wider than the prothorax, the sculpture throughout similar. Length 14.0 mm.; width 5.0 mm. Tennessee.

This species is allied closely to *politus* Dej., but is a little larger and broader, with larger and more depressed, more quadrate prothorax; it differs very perceptibly in habitus from any one of a very large series of *politus*, kindly given me by Mr. A. B. Champlain and taken at Rockville, Pennsylvania, and others from Indiana in the Levette collection, the latter examples agreeing perfectly with the former.

Dicælus speciosus n. sp.—Form and coloration nearly as in *splendidus*, but with a notably smaller head, this being barely at all more than half

as wide as the prothorax, the latter nearly similar in form, but having the broad marginal concavity slightly divided behind the middle by an extero-anteriorly projecting feeble ramus of the convexity bounding the lateral impressions externally; under surface deep black, the propleura very minutely, feebly and closely rugulose, not metallic but opaque, the abdomen with a few faint violet glints laterally. Length (♂) 19.8-23.0 mm.; width 8.3-9.3 mm. New Mexico.

The mentum in *Dicalus* has not been well described; it has a large and deep emargination, the bottom of which is broadly, evenly and feebly sinuate, and it is partially closed by a membranous or coriaceous extension of the base and sides, this part being rectilinearly truncate from side to side and of very diverse development. In *splendidus* this plate, partially filling the mental emargination, extends through about half its length; it is dense and blackish in structure and has a median, anteriorly attenuated, longitudinally impressed elevation from the base, which upon cursory examination has very much the appearance of a tooth. In *speciosus* the emargination of the mentum is much narrower, with less flaring sides and the plate referred to is thin, pale testaceous and membranous and becomes contorted on drying; it extends anteriorly nearly to the end of the mentum, thus almost completely filling the emargination. This, together with the much smaller head, bifurcating marginal concavity of the pronotum, slightly smaller size and relatively somewhat longer hind tarsi, prompts me to believe that it is specifically different from *splendidus*, in spite of the almost complete similarity in coloration and form of the striae intervals. The smaller of the two type specimens has the pale membrane of the mental emargination greatly retracted, so that it fills only about a third of the length of the emargination; this male specimen has the head still a trifle smaller, being only half as wide as the prothorax and the latter is shorter and more transverse but otherwise as in *speciosus*; the elytra are a little shorter and the margins are bluish; its locality is not known.

There is one very decided mistake in our lists of this genus as now published, relating to *dilatatus* and *dejeani*. The latter is quite a different species from *dilatatus*, which, as taken abundantly by Mr. Champlain in Pennsylvania, agrees in every particular with the description and figure of *dilatatus* as given by Say. *Dejeani*, on the other hand, is a much stouter species, with strongly inflated

elytra, very much larger head and more transverse and less anteriorly narrowed prothorax; it never should have been associated closely with *dilatatus*. The single example in my collection is from Indiana, and it seems to be rather rare in collections.

Liodicælus n. gen.

This generic name may be suggested for those species now forming part of *Dicælus*, but differing from the others in having no trace of elytral striation, the elytra having, in the place of striæ, unimpressed series of very small punctures. This imparts a decided difference in habitus, though at the same time there appear to be but few other structural differences of prominence, except the shorter antennæ. The type may be described as follows:

Liodicælus evanescens n. sp.—Rather stout, oblong-oval and convex, shining but not polished, deep black throughout, without trace of coloration; head elongate, smooth, barely half as wide as the prothorax, the impressions feeble; antennæ (♂) much shorter than the head and prothorax, the outer joints gradually much shorter; prothorax fully a fourth wider than long, the sides parallel, arcuately rounding and converging anteriorly in less than apical half, the deeply sinuate apex less than two-thirds as wide as the base, the latter as in *Dicælus*; surface feebly alutaceous though not sculptured, except in having vestiges of fine transverse and well separated waving lines, moderately convex, rather broadly and strongly reflexed laterally, the edge smooth and rather thick, the anterior impression obsolete, the transverse subbasal one broad and very moderate though distinct from the basal angles obliquely and arcuately forward, ending at lateral fourth and basal fifth; there is on each side a deep smooth impression; median stria very fine and feeble; elytra parallel, with nearly straight sides, evenly rounded in about apical third or fourth, wider than the prothorax and nearly one-half longer than wide, convex, shining, perfectly smooth and without sculpture, having regular series of very fine and well separated punctures, varying somewhat in size in the series, the series distinct suturally, becoming completely obsolete externally, the first four or five series easily traceable though gradually fainter, the carina acute and well elevated, extending a little behind basal fourth. Length (♂) 18.0 mm.; width 7.5 mm. Arizona (San Bernardino Ranch, Cochise Co.),—F. H. Snow.

Allied apparently to *flohri* Bates, from San Angel, Mexico, but differing in its rather smaller size, longer humeral carina, more impressed and more apically narrowed prothorax and apparently more evident series of elytral punctures; *flohri* is described as being oblong-elliptic, “niger, vix nitidus,” with the prothorax slightly narrowed anteriorly and everywhere smooth, the elytral striæ

everywhere obsolete, only the sutural and marginal series of punctures evident, the humeral carina short, strongly elevated and the length of male and female 19 to 20 mm. From *lævipennis* Lec., which it seems to resemble in size, it differs in its deep black coloration, without trace of violaceous tint, in the less transverse prothorax, which is said to be "basi capito triplo latior" in that species, shorter humeral carina, which is described as a third as long as the elytra in *lævipennis* and more obsolete series of punctures. The type of *lævipennis* was taken on the Platte River and the dimensions of the type are 17.5 by 7.7 mm.

**Liodicælus suffusus* n. sp.—Much smaller and less convex than the preceding, black, with distinct though sometimes partial violaceous bloom, alutaceous to strongly shining; head nearly similar, half as wide as the prothorax to a little less; antennæ (♂) only moderately slender but filiform, nearly as long as the head and prothorax, the outer joints rapidly abbreviated; prothorax shorter, a third wider than long, moderately convex, formed nearly as in the preceding but with thinner, though strongly reflexed, side margins, the median stria fine but distinct, subentire, the transverse impressions both obsolete or nearly so, the sublateral curved impressions of the preceding barely distinct to wholly obsolete; elytra nearly as in the preceding but less elongate and much less convex, barely two-fifths longer than wide, with series of punctures very distinct throughout the width, but, as usual, a little stronger suturally, the punctures small though deep, differing remarkably in form, some circular and others elongate; humeral carina rather strong and acute, short, obsolete near basal fourth or fifth. Length (♂ ♀) 13.5–15.8 mm.; width 5.6–6.3 mm. Mexico (Sierra Madre Mts., of Chihuahua),—C. H. T. Townsend. Abundant.

The nine examples at hand indicate a species which, by reason of the violaceous bloom, sometimes very strong throughout the upper surface, is remindful of *lævicollis* Lec., but it is very much smaller, with less transverse prothorax and very much shorter humeral carina; the under surface is deep and shining black, the sternal side-pieces faintly violaceous. In a few examples and by very oblique light, the surface of the third and fifth elytral intervals may be seen to be extremely faintly convex, a reversion to a common character in *Dicalus*. *lævipennis* Lec., *flohri* Bates, *evanescens* and *suffusus* are the only species referable to *Liodicælus*, so far as now known.

Calathus Bon.

This genus, together with *Pristonychus* and *Pristodactyla*, is well distinguished from the other allies of *Platynus* by the serrulate or pectinate tarsal claws. In *Calathus* they are rather pectinate than serrulate, this condition obtaining more especially in *Pristonychus*, where the claws are much more feebly modified. The Atlantic coast and Sonoran species of *Calathus*, as distinguished from the purely Pacific coast types, are numerous and may be distinguished among themselves as follows:

- Prothorax distinctly reflexed at the sides. 2
 Prothorax flatter, scarcely at all reflexed at the sides or only very narrowly and feebly so toward base; surface shining, the micro-reticulation hexagonal as in *gregarius*. 7
- 2—Elytra strongly shining in both sexes, elongate-oval, black or feebly picescent, the thoracic sides, legs and antennæ testaceous; surface smooth and polished; prothorax subquadrate, feebly rounded at the sides and slightly narrowed at apex, fully four-fifths as wide as the elytra, the latter elongate-oval, with broadly rounded sides and without exposed humeri; male a little more slender than the female; micro-reticulation hexagonal. Length 8.0–10.0 mm.; width 2.9–3.8 mm. New Hampshire to Missouri. **gregarius** Say
- Elytra opaque or strongly alutaceous, apparently in both sexes but always in the female; micro-reticulation compressed, rhomboidal. . 3
- 3—Sides of the prothorax parallel, broadly, feebly and almost evenly arcuate from base to apex, only very slightly more converging apically than basally. Body elongate-oval, rather narrow and sub-depressed, castaneous, the thoracic sides, legs, scutellum and antennæ testaceous; head dark testaceous; prothorax quadrate, the basal angles right but broadly rounded; surface with obsolescent rugulæ radiating from the median stria; elytra oblong-oval, with feebly rounded sides, almost a fourth wider than the prothorax, having very fine and feebly impressed striæ and almost flat intervals; side margins pale and distinctly reflexed; head a little more than half as wide as the prothorax; hind tarsi about as long as the tibiæ, the claws rather longer and straighter than usual, more abruptly hooked at apex. Length (♂) 8.5 mm.; width 3.1 mm. Arizona.
- sonoricus** n. sp.
- Sides of the prothorax more rounded and much more convergent apically. 4
- 4—Elytra rather shining though with an alutaceous lustre; body small, narrow, the hind tarsi (♂) very slender and rather shorter than the tibiæ. Piceous-black, the margins, legs and antennæ as usual; head small, only about half as wide as the prothorax, which is not quite as long as wide, otherwise nearly as in *opaculus*, the elytra relatively narrower, of the usual form, the side margins perhaps slightly more narrowly reflexed, the micro-reticulations strong, rhombiform, not quite so fine but especially not so laterally com-

- pressed as in *opaculus*. Length (σ^7) 6.6 mm.; width 2.5 mm. Missouri (St. Louis) **alutaceus** n. sp.
- Elytra more densely dull, not shining 5
- 5—Color paler, apparently castaneous-brown when mature, the margins, legs and antennæ pale as usual. Body rather larger and stouter than in *opaculus*, the head and prothorax relatively a little larger but otherwise similar; elytra of the usual form, between a fourth and fifth wider than the prothorax and widest at the middle, very finely striate, the rhombiform micro-reticulations fully as fine as in *opaculus* or even finer but much more feeble, with their facets nearly flat and not convex; epipleura flatter basally but similarly wider at basal fourth than at base. Length (♀) 9.0–10.0 mm.; width 3.6–3.8 mm. North Carolina (Asheville) and New Jersey. Four examples.
- appalachius** n. sp.
- Color black, with the usual paler side margins, legs and antennæ 6
- 6—Rather slender, the male and female of nearly the same size and outline, both very elongate-oval and rather narrow; head very little more than half as wide as the prothorax, the latter as long as wide, the apex about three-fourths as wide as the base; elytra oblong-oval, nearly a fourth wider than the prothorax, with very fine striæ; hind tarsi fully as long as the tibiæ. Length ($\sigma^7 \text{♀}$) 8.0–9.5 mm.; width 3.0–3.7 mm. Rhode Island to Texas (Austin) **opaculus** Lec.
- Stouter than *opaculus*, the female very much stouter and with oval inflated elytra, similar in coloration and nearly similar in the opacity and micro-reticulation of the elytra; head a little larger; prothorax of similar form; elytra a third to two-fifths wider than the prothorax (♀), but nearly as in *opaculus* (σ^7), the male being notably more slender than the female; antennæ and tarsi somewhat longer than in *opaculus*. Length ($\sigma^7 \text{♀}$) 9.3–10.3 mm.; width 3.2–4.1 mm. Kansas (Mt. Hope), Texas and Mississippi (Vicksburg) **obesulus** n. sp.
- 7—Elytral intervals broadly and feebly though evidently convex 8
- Elytral intervals flat 9
- 8—Form very elongate-oval, rather convex, strongly shining, black, the side margins not distinctly pale, except those of the prothorax toward base; head rather small; prothorax large, rather convex, almost as wide as the elytra, as long as wide, formed nearly as in *gregarius*, except that the side margin is feebly reflexed or deplanate only toward base, rather broadly so at the hind angles; elytra elongate-oval, shining, with fine striæ, the setigerous punctures of the third stria anteriorly, as usual shifting to the second posteriorly, three or four in number; coarse punctures of the outermost stria strong and equal from base to apex, widely separated; basal joint of the hind tarsi rather short, not quite as long as the next two combined. Length ($\sigma^7 \text{♀}$) 7.4–9.0 mm.; width 2.8–3.4 mm. Colorado (Boulder Co.) **coloradensis** n. sp.
- Form narrower, the size smaller, rather convex, almost similar in coloration, the prothorax relatively smaller, the head larger, the former as long as wide, with rather less rounded sides and scarcely more than three-fourths as wide as the elytra, which are more oblong-oval, with broadly and evenly arcuate sides, less elongate and more ob-

tusely rounded at apex, the side margins still more narrowly reflexed; tarsi nearly similar, the claws longer but arcuate from near the middle to the apex. Length (σ^7 ♀) 6.5–8.0 mm.; width 2.6–3.2 mm. Colorado—Levette collection. Five examples. **reductus** n. sp.

- 9—Body larger, testaceous in color throughout, shining; head well developed, evidently more than half as wide as the prothorax, the antennal joints long and slender; prothorax nearly as long as wide, the sides almost evenly and broadly arcuate throughout, more converging anteriorly, the apex three-fourths as wide as the base, rather convex, the sides very finely reflexed, becoming more broadly deplanate basally, the longitudinal impressions near outer and basal fourth distinct; elytra oblong-oval, relatively much shorter than in either of the preceding, only about a fifth wider than the prothorax, obtusely rounded at apex; tarsal claws of only moderate length. Length (♀) 8.8–9.2 mm.; width 3.3–3.6 mm. New Mexico (locality unrecorded) **acomanus** n. sp.

Body much smaller, more slender, shining, piceous-black, the legs, antennæ and thoracic side margins testaceous; head rather small, scarcely more than half as wide as the prothorax, the latter smaller, about as long as wide, the sides almost evenly arcuate throughout, the apex a little less narrowed than in the preceding, the surface and sides nearly similar, the impressions vestigial; elytra rather short and oblong-oval, fully a fourth wider than the prothorax, obtusely rounded behind, the striæ very fine, the intervals absolutely flat; punctures generally two before the middle on the third, and one near the apex on the second, stria; basal joint of the hind tarsi shorter than usual, distinctly shorter than the next two combined. Length (σ^7 ♀) 6.5–8.2 mm.; width 2.4–3.0 mm. Labrador (West St. Modest),—Sherman. Four examples. **labradorinus** n. sp.

There may be some doubt as to the status of *appalachius*, though my four examples are distinctly larger and stouter than any of the females of *opaculus* at hand, and with correspondingly larger head and prothorax; if the pale coloration of the four examples holds constant through extended series, there will be no doubt of its specific standing. *Confusus* Lec., from Lake Superior, I do not have at present, though it may possibly be redescribed as one of the last four species of the table; it has been united with the Alaskan *ingratus* Dej., but I have no means of knowing how justly; it is probably not identical however. The American species of *Calathus* form a rather unsatisfactory study because of their monotony, and the Atlantic species are less isolated among themselves than those of the Pacific coast; among these latter forms I find an undescribed species which may be outlined as follows:

Calathus longulus n. sp.—Form elongate-oval, slightly ventricose, alutaceous, blackish-piceous, the elytra deep black and but feebly shin-

ing, opaculate; legs, antennæ and sides of the prothorax dark testaceous; head somewhat evidently more than half as wide as the prothorax, the antennal joints long and slender; prothorax relatively rather small, not quite as long as wide, the sides broadly arcuate, converging anteriorly, parallel basally, the basal angles rounded; surface broadly convex, distinctly concave and reflexed at the sides, more broadly and feebly basally; elytra oval, convex, three-fifths longer than wide and fully two-fifths wider than the prothorax, the striæ fine, the intervals flat, the microreticulations but little longer than wide, irregularly hexagonal, rather convex and shining, the incised separating lines deep; sides evenly and rather strongly arcuate; pectination of the tarsal claws much shorter than in any of the eastern species. Length (♀) 9.5 mm.; width 3.7 mm. California (Los Angeles Co.).

Allied rather more closely to *obscurus* Lec., than any other, but more elongate, with relatively much smaller prothorax and more inflated elytra; the antennæ are more elongate and the prothorax much less transverse, being in fact nearly as long as wide. There are before me extended series of all the California species except *behrensi*, which is represented by two examples only. *Quadricollis* is very abundant in the coast regions from Humboldt to Sta. Barbara; *obscurus* is rather less abundant from San Francisco to San Diego; *ruficollis* is by far the stoutest species and occurs abundantly about San Francisco; I do not happen to have it from any other locality. My two examples of *behrensi* are from San Diego and Calaveras Co.; it very much resembles *ruficollis*, except that it is less stout in build; *guadalupensis* is by far the largest American species of the genus; it is confined so far as known to the island of Guadalupe; *quadricollis* also occurs on the island, but apparently as a recent importation and is not endemic as in the case of *guadalupensis*.

Pristodactyla Dej.

In general habitus such species as *dubia* and *impunctata*, differ very decidedly from any of the above mentioned members of *Calathus* proper and, on this ground alone, it would seem advisable to retain the genus; but there are certain more specialized structural characters as well, such as the unmarginated intercoxal process of the prosternum in *Pristodactyla*. The Munich catalogue does not recognize *Pristodactyla* and makes it a synonym of *Odontonyx* Steph., but the latter is sunk as a synonym of *Calathus* in the recent European catalogue, which gives to *Pristodactyla* full generic

value. In this catalogue *Pristodactyla* is ascribed to Chaudoir, but it is given to Dejean in the Nomenclator Zoologicus of Scudder and also in the Munich catalogue.

The species of *Pristodactyla* are not numerous, comprising at present the *Feronia impunctata* of Say, *dubia* and *advena* of LeConte and the Mexican *Calathus ovipennis* Putz.; also *corvina* Lec., which has been suppressed as a synonym of *impunctata*, but which seems to be specifically distinct, being larger and narrower than *impunctata* and more southern in habitat; at any rate its status should apparently not be less than that of a well marked subspecies of *impunctata*. The following is another subspecies of *impunctata*:

***Pristodactyla impunctata* ssp. *convexa* nov.**—Elongate-oval, convex and polished, deep black, the legs and antennæ dark testaceous; head about half as wide as the prothorax, the latter large, nearly a fifth wider than long, the sides rounded, more converging basally, the angles very broadly rounded; surface convex, very finely reflexed at the sides, rather abruptly broadly so at base, uniting with the deep lineiform longitudinal impression near outer and basal fourth, the median stria distinct; elytra elongate-oval, not quite a third wider than the prothorax, the striae rather fine, deeply impressed suturally. Length (♀) 11.2 mm.; width 4.3 mm. New York (Lake Champlain).

On comparing the type with a female of *impunctata* from Lake Superior, it is readily perceived to be larger and broader, with more elongate elytra, having the striae more deeply impressed inwardly and the antennæ longer and more slender; the typical *impunctata* is represented in my collection from Rhode Island, Lake Champlain, Pennsylvania and northern Wisconsin.

***Pristodactyla arizonica* n. sp.**—Elongate, rather depressed, piceous-black, moderately shining, the elytra opaque; legs dark piceous; tarsi and antennæ testaceous, the latter with the basal joint blackish; head rather large, fully three-fifths as wide as the prothorax, the antennæ slender, with elongate joints; prothorax about as long as wide, the base three-fourths the maximum width and four-fifths as wide as the apex, the sides broadly and almost equally rounded but more converging basally, the angles very broadly rounded; surface feebly convex, very finely reflexed at the sides, gradually very slightly less finely toward base. the longitudinal depressions rather broadly impressed but not deep, connected by a rather evident, medially somewhat anteriorly angulate, transverse impression, the anterior impression obsolete; elytra oblong-oval, with parallel, evenly and broadly rounded sides, obtusely rounded at apex, almost one-half wider than the prothorax, two-thirds longer than wide, depressed above, opaque, with very fine unimpressed striae and very flat intervals. Length (♂) 11.7 mm.; width 4.2 mm. Arizona.

Differs from the following species in its more slender and more depressed form, more elongate and more opaque elytra, wholly impunctate striæ, more distinct basal transverse thoracic impression, more slender antennæ, less broadly dilated anterior tarsi of the male and in the form of the mentum tooth.

Pristodactyla zuniana n. sp.—Form rather stout, rather convex, deep black, polished, the elytra densely alutaceous; legs throughout piceo-rufous, the antennæ dark testaceous, the basal joint but little darker; head rather large, fully two-thirds as wide as the prothorax, the antennæ moderately long and slender; prothorax large, slightly shorter than wide, formed as in the preceding, except that the deep and similarly posteriorly bifurcate sublateral impressions near the base are not connected by the transverse impression, this being very feeble and not anteriorly angulate at the middle, the anterior transverse impression obsolete or barely traceable; base not truncate as in *arizonica* but broadly and feebly sinuate; elytra oblong-oval, about one-half longer than wide, only two-fifths wider than the prothorax, with parallel, broadly arcuate sides and obtuse apex, the striæ fine, scarcely at all impressed, finely, very distinctly punctate throughout, with the usual two to three small foveæ, the intervals almost perfectly flat. Length (♂) 10.4–11.8 mm.; width 4.2–4.5 mm. New Mexico (locality unrecorded).

Both the above species differ from *dubia* Lec., in having the prothorax less narrowed at base, the base in *dubia* being only about two-thirds as wide as the apex, also in the deeper latero-subbasal thoracic impressions; the transverse impressions in *zuniana* are much feebler. The mentum tooth in *dubia* is said to be narrow, with its tip very slightly emarginate. In *arizonica* the tooth is broad, subparallel, with its apex broadly and obtusely bilobed and its surface is equally and strongly canaliculate medially throughout the length. In *zuniana* it is more trapezoidal, with the two lobes of the apex pointed and the strong medial emargination angulate and continued posteriorly on the surface by a posteriorly and rapidly attenuate impression. The very distinctly punctulate elytral striæ of *zuniana* would undoubtedly have been observed by LeConte if present in *dubia*, the length of which is given as 12 mm.

****Pristodactyla semirufa*** n. sp.—Small, rather slender, moderately convex, pale testaceous in color and polished, the elytra more obscure testaceous and faintly alutaceous; head large, fully three-fourths as wide as the prothorax, the antennæ only moderately slender, pale testaceous throughout; prothorax small, convex, nearly a fifth wider than long, the sides rather strongly arcuate throughout, a little more converging basally, with broadly rounded angles and rectilinearly truncate base, which is

four-fifths the maximum width and but very little narrower than the apex; surface convexly declivous almost to the lateral reflexed bead from apex to base, the latero-subbasal impressions short and very feeble, the transverse impression very feeble, the anterior obsolete, the median stria distinct; elytra oval, with broadly arcuate sides and obtuse apex, distinctly wider behind the middle than at base, nearly one-half wider than the prothorax and barely one-half longer than wide; striæ very fine, not at all punctulate, the three foveæ distinct, the intervals flat; hind tarsi much shorter than the tibiæ, the pectination of the claws short but fine. Length (♀) 8.5 mm.; width 3.2 mm. Mexico (Sierra Madre Mts., of Chihuahua),—C. H. T. Townsend.

There is no species closely allied to this, with which it can be compared. The mentum tooth is trapezoidal, flat, broadly and very faintly impressed medially except toward base, the lobes of the apex rather acutely angulate and separated by a deep angular emargination.

Rhadine Lec.

This genus should be considered valid, not so much because of modifications of special organs, as on account of its general habitus, in which feature it is sharply delimited from *Platynus*. I was abandoned by LeConte, for the reason that there seemed to be no structural character pertaining to special parts or organs that distinguishes it abruptly from *Platynus*, as for example, the dorsal modifications of the anterior tarsi; the occasional grooving of this surface is of no generic significance whatever, as it becomes completely lost in species otherwise closely allied to those possessing it, and, in one before me, it is only partially present on the first joint. The slender body, with narrow and generally much elongated prothorax, flattened upper surface and long slender legs, give the group a very peculiar appearance among the Platynids; in addition to this, the third antennal joint, although variable, appears to be somewhat constantly longer in a relative sense. The species are numerous but local in range and are not abundant individually; they are almost peculiar to the southwestern faunal regions of North America and those now in my collection, mostly represented by single examples, may be identified as follows:

Larger species always over 10 mm. in length.....	2
Small species, always much less than 10 mm. in length.....	8
2—Elytral striæ with distinct and comparatively coarse punctures, the intervals more or less convex; pronotum with a few scattered punctures toward the sides.....	3

- Elytral striæ very fine and never distinctly punctate. 5
- 3—Body ferruginous in color. Shining, depressed above, convex beneath; head elongate, three-fifths as wide as the prothorax, the antennæ only moderately slender and (♀) not quite half as long as the body, the third joint not quite a third longer than the fourth; prothorax a fifth to sixth longer than wide, widest but little before the middle, the sides parallel and broadly arcuate, gradually converging posteriorly, becoming parallel for a short distance before the sharply defined hind angles; base sinuate medially, transverse near the sides, fully as wide as the apex and three-fifths the maximum width; surface feebly convex, sharply but moderately reflexed at the sides, slightly flattened and transversely subrugulose basally, the median stria distinct, impressed, subentire; apical angles very obtusely rounded; elytra oval, twice as long as wide and four-fifths wider than the prothorax, the side margins very strongly reflexed, the striæ impressed, coarsely and irregularly punctate, the scutellar long, forming an even continuation of the first stria, the intervals polished and convex, impunctate; apices much prolonged and very acute; legs long and slender; hind tarsi two-thirds as long as the tibiæ, the first joint of the anterior apparently with a very faint groove at each side of the upper surface; claws long and slender. Length (♀) 13.0–14.0 mm.; width 4.3–5.0 mm. New Mexico (Fort Wingate). Three examples. *nivalis* Horn
- Body black in color, picescent beneath, the legs blackish-piceous; body smaller and much more slender, the upper surface polished throughout. 4
- 4—Form very moderately ventricose; head moderately elongate, three-fourths as wide as the prothorax, the neck rather abruptly formed; antennæ brownish-testaceous throughout, slender, not quite half as long as the body, the third joint about one-half longer than the fourth; prothorax oval, widest just visibly before the middle and fully a fourth longer than wide, the sides broadly rounded, subparallel, feebly converging anteriorly, more so posteriorly, becoming parallel before the angles, which are barely so much as right and very sharp; base very feebly sinuate, transverse at the sides, three-fifths the maximum width, equal to the apex, which is very feebly sinuate between the very obtusely rounded angles; surface feebly convex, broadly and feebly impressed along the sides, more so basally, the side margins acutely but narrowly reflexed, the median stria fine but deep, subentire; elytra twice as long as wide, scarcely visibly less than twice as wide as the prothorax, oval, the apices obliquely and broadly sinuate, with the tips much produced, dehiscent and very acute; margins strongly reflexed; striæ impressed, with rather regular coarsish punctures, the scutellar long, the intervals convex; legs only moderately long; anterior tarsi not grooved dorsally. Length (♂) 12.0 mm.; width 3.9 mm. New Mexico (Jemez Springs),—John Woodgate. *umbra* n. sp.
- Form slightly more abbreviated; head fully two-thirds as wide as the prothorax, the neck more gradually formed than in *umbra*; antennæ nearly similar but rather longer, half as long as the body, the third joint two-

fifths longer than the fourth; prothorax inflated more anteriorly, widest near apical two-fifths, not a fifth longer than wide, the sides more strongly rounded, the converging basal parts, base and angles nearly similar; base relatively narrower, four-sevenths the maximum width, fully as wide as the apex, which is extremely feebly sinuate between the obtuse but rather sharply marked and scarcely at all rounded angles; surface nearly as in the preceding, the side margins not quite so strongly elevated and less diaphanously rufescent; elytra similar but not so elongate and more evidently widest a little behind the middle, not four-fifths longer than wide, the apices similar but not so produced or so finely acuminate, the impressed striæ a little less coarsely and more irregularly punctured, the intervals convex, smooth, the setigerous punctures similarly difficult to trace but apparently three in number; side margins strongly reflexed and similarly thin and rufo-diaphanous; legs even more slender; two basal joints of the anterior tarsi with two fine sharp grooves separated by the broadly convex upper surface, the claws moderately long. Length (♀) 11.3 mm.; width 3.8 mm. Arizona (San Francisco Mts.),—F. H. Snow *sublustris* n. sp.

- 5—Base of the prothorax very narrow, barely half the maximum width. Body rather ventricose, feebly convex, very shining throughout, the elytra with scarcely perceptible alutaceous lustre, dark though bright testaceous, the elytra more obscure; head elongate, three-fourths as wide as the prothorax, with rather narrow and abruptly formed neck, the eyes moderate but prominent; antennæ nearly half as long as the body, slender, the third joint about a fourth longer than the fourth, both much elongated; prothorax only about a sixth longer than wide, rather inflated, widest near anterior third, the sides rounded, gradually very converging behind the middle, becoming very broadly and scarcely evidently sinuate to the basal angles, which are right, very sharp and abruptly prominent; base broadly sinuate, becoming arcuate at the sides, barely two-thirds as wide as the apex, which is broadly, distinctly sinuate between the broadly and obtusely rounded angles; surface distinctly convex, broadly, feebly concave toward the sides, more deeply basally, the edges strongly reflexed and thin, the median stria fine but strong; elytra fully three-fourths longer than wide, regularly oval, four-fifths wider than the prothorax, rather obtusely oblique and feebly sinuate at apex, the tips obtusely angulate; striæ fine, feeble, very obsoletely and irregularly sculptured, the scutellar almost effaced, the fovea however strong; intervals just visibly convex, the third with four or five punctures; side margins very strongly reflexed and rufo-diaphanous; legs long and slender, the hind tarsi almost as long as the tibiæ; basal joint of the anterior with two fine approximate dorsal grooves, meeting at base, subobsolete on the following joints; claws long, slender, arcuate. Length (♀) 11.7 mm.; width 4.0 mm. New Mexico (Cloudcroft, Sacramento Mts.),—Warren Knaus. *dissecta* Lec.
- Base of the prothorax relatively less narrowed and more or less evidently exceeding one-half the maximum width. 6

6—Elytra strongly shining; body stouter. Color blackish rufo-piceous, the elytra rather more obscure, except the thin diaphanous and strongly reflexed rufous side margins; head only slightly elongate, two-thirds as wide as the prothorax, the neck abruptly formed, the oblique sides behind the eyes not as long as the latter; antennæ moderately slender basally, thickened apically, less than half as long as the body, the third joint a third longer than the fourth; prothorax unusually broad, not at all longer than wide, widest at apical third, the sides strongly rounded, strongly converging posteriorly, becoming rather abruptly deeply sinuate near the base, thence somewhat diverging to the right and very sharp, prominent angles; base rather strongly sinuate, becoming transverse laterally, fully three-fifths the maximum width and as wide as the apex, which is rather deeply sinuate between the obtuse and rounded angles; surface somewhat convex, declivous at the sides to the strongly reflexed thin margins, along which the concavity is narrow and deep, becoming lost basally in the large and deep basal concavities, the angles appearing thereby very much reflexed; stria fine, broadly impressed, conspicuous; elytra four-fifths longer than wide, evenly suboblong-oval, feebly convex, barely three-fifths wider than the prothorax, the humeri rather more suggested than usual, the apices obliquely, strongly sinuate, the tips obtusely angulate though sharply defined; striæ fine, feebly impressed, indefinitely and minutely sculptured, the scutellar long but feeble, the intervals feebly convex, very slightly alutaceous, the third with about four small setigerous punctures; legs long and slender, the hind tarsi fully as long as the tibiæ; first joint of the anterior with two diverging dorsal grooves, starting from the middle of the base, the outer entire, the inner much abbreviated. Length (♀) 13.2 mm.; width 4.5 mm. Arizona (San Francisco Mts.),—F. H. Snow.....*constricta* n. sp.

Elytra opaque, the body notably slender. Sierra Nevada Mountains. .7

7—Body, legs and antennæ bright testaceous in color, the elytra dark rufo-piceous, with the usual diaphanous reddish margins; anterior parts and under surface shining; head of the usual subrhomboidal form, three-fourths as wide as the prothorax, the eyes of the usual development and convex; oblique sides behind them much longer than the eyes; antennæ slender, filiform, rather more than half as long as the body, the third joint nearly one-half longer than the fourth; prothorax only a sixth longer than wide, widest at apical third, the sides rounded, converging posteriorly, becoming not abruptly straight and parallel for a slight distance from the angles, which are right but not at all prominent and evidently blunt or rounded; base very distinctly narrower than the apex, four-sevenths the maximum width, feebly sinuate, transversely rounded laterally; apex feebly sinuate, with obtusely rounded angles; surface feebly convex, depressed but not strongly impressed basally and with some feeble punctures near the basal angles, the median stria strong, feeble posteriorly; sides moderately and abruptly reflexed; elytra very nearly twice as long as wide, barely visibly widest posteriorly, four-fifths wider than the prothorax, the sides very oblique basally,

without trace of humeri; surface very feebly convex, the striæ very fine and finely, obsoletely sculptured, the intervals nearly flat, the third with four punctures, the sides rather strongly and very abruptly reflexed, the apices obliquely feebly sinuate, the tips not prolonged but separately angulate, the angle only moderately sharp; legs long and slender, the anterior tarsi simple, the posterior strongly grooved at the sides as usual, nearly four-fifths as long as the tibiæ. Length (♂) 11.2 mm.; width 3.75 mm. California (Truckee, near Lake Tahoe)..... *jejuna* Lec.

Body in color, lustre and general form as in the preceding but still more slender; head more elongate, nearly four-fifths as wide as the prothorax, the neck narrower, the eyes similar; antennæ a little less slender, the third and fourth joints actually not so long but of the same relative proportion; prothorax narrower, fully a fifth longer than wide, similar in form, except that the sides are more broadly arcuate and, toward base, become only oblique and very feebly sinuate, not at all parallel near the angles, which are slightly obtuse as well as distinctly rounded; base similar but barely visibly narrower than the apex, nearly three-fifths the maximum width; surface nearly similar throughout, except that there is a feeble impression extending almost from apex to base and parallel to the side margins at a considerable distance therefrom; elytra still more nearly twice as long as wide, a little narrower, not definitely widest posteriorly, the surface and margins similar, the striæ even finer and feebler and the apices more obliquely sinuate but with each tip evenly and broadly rounded; legs and tarsi nearly similar, the hind trochanters short and with the apex very obtuse, almost arcuato-truncate. Length (♂) 11.0 mm.; width 3.5 mm. California. Labelled simply "Cal." in the Levette collection..... *gracilentia* n. sp.

8—Head barely visibly narrower than the prothorax. Body shining and pale testaceous throughout, the elytra feebly alutaceous, rather strongly ventricose; head elongate, the eyes rather large but only moderately convex, equal in length to the oblique sides behind them; antennæ long, very slender and filiform, much more than half as long as the body, the third joint a third longer than the fourth, all the joints very long; prothorax two-fifths longer than wide, widest near apical third, the sides rounded, very gradually converging posteriorly, becoming very slightly sinuate near the basal angles, which are nearly right and moderately reflexed but not prominent or very sharp; base sinuate medially, arcuate at the sides, one-half the maximum width and three-fourths as wide as the apex, which is transverse, with the angles barely at all advanced, slightly more than right and very narrowly blunt; surface feebly convex, feebly impressed nearly throughout at some distance from the rather strongly and abruptly reflexed margins, the impressions deeper basally, impunctate, the median stria fine but strong, subentire; elytra evenly oval, widest at the middle and about two and one-half times as wide as the prothorax, nearly three-fourths longer than wide; surface very feebly convex, the striæ very fine and feeble, the intervals not quite flat, the third with four punctures, the side margins rather

feebly reflexed, the apices obliquely sinuate, the tips angulate, the angle right and sharply defined; legs long, very slender, the hind tarsi about as long as the tibiæ, the anterior (♀) very slender, not grooved dorsally. Length (♀) 9.3 mm.; width 2.8 mm. New Mexico (Las Vegas),—Meeske.....**longipes** n. sp.

Head much narrower than the prothorax.....9

9—Body, legs and antennæ pale brownish-testaceous throughout, shining, the elytra feebly alutaceous; head elongate, rhomboidal, four-fifths as wide as the prothorax, the eyes well developed; antennæ very long, slender and filiform, the second joint relatively much longer than in the preceding and distinctly more than half as long as the third, which is a third longer than the fourth; prothorax a little more than a fourth longer than wide, widest near apical third, the sides rounded, gradually converging posteriorly and becoming evidently though feebly sinuate for a considerable distance before the angles, which are slightly obtuse but very sharp and well defined; base only three-sevenths the maximum width and barely three-fifths as wide as the apex, which is broadly and evenly sinuate between the broadly obtuse and rounded angles; surface nearly as in the preceding but less impressed at the sides basally, less strongly reflexed at the sides and with a more deeply impressed median stria; elytra more elongate, evenly oval, widest at the middle, almost twice as long as wide and about twice as wide as the prothorax, the surface similar but more broadly concave and strongly reflexed at the sides, the apices a little less obliquely sinuate and the angulate tips rather more obtuse; legs long and very slender, the hind tarsi not quite as long as the tibiæ, the anterior (♀) with the long first joint feebly bistrigate dorsally. Length (♀) 9.7 mm.; width 3.0 mm. New Mexico (Jemez Springs),—Woodgate.....**anthicoides** n. sp.

Body, legs and antennæ pale rufo-testaceous, shining, the elytra opaque and with a large blackish cloud occupying the entire area except laterally and more broadly toward base; head moderately elongate, three-fourths as wide as the prothorax, the eyes moderate, shorter than the oblique sides behind them; antennæ shorter than in the two preceding, though fully half as long as the body, slender basally, gradually thickened distally, the third joint nearly one-half longer than the fourth; prothorax about a fifth longer than wide, the sides anteriorly subparallel and feebly arcuate, rounding more apically, gradually converging in about basal half, becoming very broadly and feebly sinuate and oblique posteriorly, the angles obtuse and well rounded; base transverse, the sides rounded and slightly more posteriorly projecting, nearly three-fifths the maximum width and four-fifths as wide as the apex, which is evenly and feebly sinuate between the obtuse and moderately rounded angles; surface feebly convex, impunctate, feebly impressed not very near each side behind the middle, only a little more so basally, the side margins abruptly but not strongly reflexed; elytra two-thirds longer than wide, twice as wide as the prothorax, slightly more inflated posteriorly, nearly flat, rather broadly and strongly reflexed at the sides posteriorly but gradually and only finely so basally, very finely and feebly striate,

obliquely and feebly sinuate at apex, the tips each obtuse and rounded; third interval with four punctures; legs rather long and slender, the anterior tarsi obviously grooved. Length (♀) 9.0 mm.; width 2.7 mm. Mexico (Colonia Garcia, Sierra Madre Mts., Chihuahua),—C. H. T. Townsend.....**perlevis* n. sp.

Of the species pertaining to this genus which I do not have at hand, it should be said that *larvalis* Lec.—from the regions about St. Louis, Mo., but apparently very rare—has the third antennal joint as long as the next two combined and *caudata* Lec., has the alternate stria intervals of the elytra peculiarly punctate, apparently somewhat as in *Platynus hypolithus* Say. Finally, *myrmecodes* Horn, is evidently related to the small species named *longipes* and *anthicoides* above, but, though the description fits either of them tolerably well, the third antennal joint would hardly be recorded as a little longer than the fourth in either of them; it is much longer than the fourth; as the elytra are said to be nearly twice as long as wide, it may be more closely allied to *anthicoides* than to *longipes*; however, as the latter species are mutually widely distinct, the probabilities are that neither of them will prove to be the same as the Arizonian *myrmecodes*. It is probable that LeConte included several species under his very inadequately described *jejuna*, and I am not positive that the one above described under that name is precisely conspecific; it has been in my collection under that name for many years, however, and my recollection is that it was compared with the one bearing the type label in the LeConte collection. Of the Mexican species, *leptodes* Bates, differs from any above described in having the thoracic base sinuate from angle to angle and *euprepes* Bates, also from Durango, differs in the strong elytral striae; it is about 12 mm. in length.

Olisthopus Dej.

It is almost impossible to believe that either *Feronia parmata* or *Olisthopus cinctus* of Say, can be identical with the species that is commonly known as *Olisthopus parmatus* Say, in our present lists, and yet, if not applying to the latter, they must both be considered unknown. For instance, under the description of *Feronia parmata*, the author states that the prothorax is destitute of an elevated edge and that the elytra are black-brown to the sixth stria, the margin pale rufous; neither of these characters applies to our *Olisthopus*

parvatus Say. Again, under *Olisthopus cinctus*, he writes that the lateral basal impressions of the pronotum are sparsely punctured and the elytra dull reddish-brown, whereas in our usual conception of *parvatus*, with which *cinctus* has been merged as a synonym, there is no trace of punctuation and the elytra are strongly variegated in color. However, until Say's forms can be known more definitely, it would not be worth while to overturn the prevailing notions of *parvatus* Say. The American species of *Olisthopus* are moderately numerous, those in my collection being definable as follows:

- Body somewhat ventricose, the antennæ long, very slender and filiform, two-thirds to three-fourths as long as the body. 2
- Body more parallel, very small in size, the antennæ much shorter, one-half as long as the body or but little more, though filiform and more or less slender. 6
- 2—Basal impressions of the pronotum longer, sublinear though very broadly concave and extending to basal fourth. Body narrower than in *parvatus* but similar in coloration, black beneath, with pale legs, shining throughout, the elytra barely at all alutaceous; head black, as wide as long, three-fifths as wide as the prothorax, the eyes large; antennæ fuscous, the three basal joints pale; prothorax two-fifths wider than long, the sides rounded almost evenly, widest barely before the middle, the base transverse and very moderately arcuate, the apex rather deeply sinuate, the basal angles very broadly rounded; surface piceous-black, rufescent laterally, with pale elevated marginal bead; elytra testaceous, black except at the sides and along the sutural interval in a cloud occupying rather more than posterior half and with a transverse testaceous common spot at the centre, oblong-oval, a third longer than wide, nearly one-half wider than the prothorax, together subcircularly rounded at apex, the situation obsolete; surface with rather strong and distinctly impressed striæ, the two lateral punctulate, the lateral series of foveæ broadly interrupted, the scutellar long, continuous with the first stria, the basal part of the latter disconnected, the fovea not distinct, the first and second punctulate basally; intervals feebly convex, the third with three punctures. Length (σ^7) 6.5 mm.; width 2.6 mm. Wisconsin (Bayfield),—Wickham. **pictus** n. sp.
- Basal impressions short, not extending far from the basal margin, always impunctate. 3
- 3—The impressions small, rounded and foveiform, the prothorax relatively large. 4
- The impressions outwardly oblique anteriorly from the base and not including a rounded foveiform concavity at the base; prothorax relatively much smaller. 5
- 4—Body stouter, moderately convex, deep and shining black, the fine elevated marginal bead of the pronotum and the elytra and epi-

pleura testaceous, the disk of the elytra with a large black cloud in about posterior two-thirds, not extending to the sides, the sutural interval pale and with a lateral nubilous pale dilatation at about the centre; under surface black, the legs pale; head actually but not relatively larger than in *pictus*, three-fifths as wide as the prothorax, the eyes and antennæ similar; prothorax larger, more transverse, one-half wider than long, similar, except that the base is more rounded and more continuous with the sides, also more distinctly wider than the apex; elytra oblong-oval, broader, with more rounded sides and still more obtuse apex, only about a fourth longer than wide and a third wider than the prothorax, the striæ finer, much less impressed and everywhere impunctate, the intervals flat, just visibly convex internally, the apical sinuses only barely indicated. Length (σ^7 ♀) 6.2–7.2 mm.; width 2.8–3.2 mm. Rhode Island, Massachusetts, Pennsylvania and District of Columbia. [*cinctus* Say].

parmatus Say

A—Similar to the preceding in every way, except that it is much smaller in size, the prothorax and elytra both shorter, the former three-fifths wider than long and the latter barely a fifth longer than wide; legs a little shorter. Length (σ^7) 4.8–5.1 mm.; width 2.0–2.2 mm. Indiana.....**iterans** n. subsp.

Body less stout and very much smaller, piceous, the pronotum paler at the finely reflexed lateral margins and with a small nubilous pale cloud on each elytron near the suture and just behind the middle; head blackish, as wide as long, three-fifths as wide as the prothorax, the eyes large, the antennæ very slender, filiform, the joints beyond the second nearly equal in length as in the preceding species; prothorax large, parallel, one-half wider than long, the sides broadly rounded, the base broadly arcuate, somewhat lobed between the impressions, the angles very broadly rounded as usual; impressions small, deep but broadly prolonged anteriorly for some distance in a very broad and evanescent, indefinite impression; apex rather deeply sinuate from side to side; elytra oblong-oval, fully a fourth longer than wide, nearly one-half wider than the prothorax, the sides broadly arcuate, gradually oblique and straighter apically; surface not distinctly opalescent, finely striate, the striæ impunctate, all distinct, the scutellar long, forming an even continuation of the first stria, the basal part of which is detached, the fovea small but evident; intervals flat or nearly so, the third with the usual three punctures near the third and second striæ; legs slender and rather long, the hind tarsi five-sixths as long as the tibiæ. Length (σ^7) 4.8 mm.; width 2.1 mm. Rhode Island (Boston Neck). The single type is immature.....**innuens** n. sp.

5—Body small in size, much less broad in form, piceous-black, the elytra nubilously somewhat paler laterally and also transversely near basal fourth; under surface blackish, the legs pale; head rather longer than wide, three-fourths as wide as the prothorax, the eyes large; antennæ as in the preceding species; prothorax (♀) relatively very much smaller, nearly three-fifths wider than long, parallel, with rounded sides, the base almost circularly

rounded and continuous with the sides, the position of the angles marked by the usual strong setigerous puncture; surface broadly convex, with distinct median stria, the finely reflexed sides scarcely at all paler in color, the basal impressions broader, more indefinite and more oblique than in the preceding; apex about as wide as the base, feebly sinuate, the angles blunt but not so broadly rounded as in *parmatius*; elytra more oblong, a fourth longer than wide, the sides broadly arcuate and rather more broadly reflexed, fully two-thirds wider than the prothorax, the striæ extremely fine, impunctate, almost obsolete externally, the intervals flat, the third with the usual three punctures; apices rather broadly arcuate-subtruncate and without trace of sinuations; surface lustre feebly opalescent; scutellar fovea distinct; tarsi extremely slender, the posterior much more notably shorter than the tibiæ than in the preceding. Length (♀) 4.6 mm.; width 1.9 mm. Rhode Island.

filicornis n. sp.

6—Form rather narrow and shining, moderately convex, piceous, the elytra but faintly variegated; head rather wider than long, two-thirds as wide as the prothorax, the eyes large, moderately prominent; antennæ slender, three-fifths as long as the body, the outer joints gradually shorter, the tenth two and one-half times as long as wide and three-fourths as long as the third; prothorax one-half wider than long, evenly rounded at the sides, the base broadly arcuate, truncate or subsinuate medially, as wide as the apex, which is feebly sinuate; basal angles very broadly obtuse and rounded; surface moderately convex, finely reflexed at the sides, feebly striate, the impressions very small, rounded and basal; elytra oblong, fully a fourth longer than wide, two-fifths wider than the prothorax, the sides parallel and broadly arcuate, the combined apices almost evenly rounded; surface and striæ almost as in the preceding, except that there is no evident opalescence; legs and tarsi extremely slender, the posterior tarsi much shorter than the tibiæ. Length (♂) 3.5 mm.; width 1.4 mm. Louisiana (Alexandria). A single rather immature example. *pusio* n. sp.

Form nearly similar, shining, piceous-black, the pronotum feebly pallescent toward the periphery, the elytra colored almost as in *parmatius*, but with the short transverse pale sutural spot more posterior in position and evidently behind the middle; under surface rufopiceous, the legs pale; head as long as wide, with well developed eyes, three-fifths as wide as the prothorax; antennæ scarcely more than half as long as the body, less slender than usual, the joints much shorter, gradually decreasing, the tenth about twice as long as wide; prothorax three-fifths wider than long, the sides rounded and with a fine reflexed margin, the general outline of the sides and base as in *parmatius*, the impressions very small, foveiform and very near the basal marginal bead, which is broadly interrupted medially; elytra a fourth longer than wide and nearly a third wider than the prothorax, throughout nearly as in *parmatius*; tarsi unusually short, the posterior scarcely more than two-thirds as long as the tibiæ. Length (♀) 3.7 mm.; width 1.4 mm. Illinois. *brevicornis* n. sp.

Micans of LeConte, described from Georgia and said to be very rare, may possibly be redescribed above under the names *filicornis* or *innuens*; it is said to be 4.7 by 1.75 mm. in dimensions and the elytra with cyaneous reflection, which is not apparent in *innuens*. If the striae in *micans* were as in *filicornis*, they would almost certainly have been described as obsolescent except suturally. The basal impressions of the pronotum in *micans* are said to be small, rounded and scarcely conspicuous, which would not suit the broad oblique impressions of *filicornis* at all, but is rather more suggestive of *innuens* and *pusio*; the latter, however, is much smaller and neither of them have any distinct metallic lustre on the elytra. In view of the plurality of species in the genus and the wide difference in habitat of *micans*, *innuens*, and *filicornis*, I will leave the species as here announced for the present. *Iterans* is probably a distinct species and not a subspecies of *parmatius*; but, in view of the very great similarity in nearly all features except size, it would be a rather more conservative course perhaps to announce it as a subspecies provisionally.

Atranus Lec.

The following is allied to *pubescens* Dej., but is smaller and of different coloration:

Atranus pallescens n. sp.—Rather slender, pale brownish-testaceous in color, the head more obscure, shining, clothed not very densely with short inclined pale hairs; head as in *pubescens* but narrower and with less prominent eyes, the antennae not quite so long, with the joints becoming shorter apically; prothorax relatively larger though more narrowed basally, the base rather less oblique at the sides, the angles obtuse; surface almost similar, except that the basal impressions are smaller, shorter and more lineiform, barely as long as wide and very much wider than the head; elytra narrower and barely twice as wide as the prothorax but otherwise nearly similar, the striae punctures rather coarser; under surface and legs testaceous, the prosternum more obscure and the head blackish. Length (♂) 5.0–5.4 mm.; width 1.8–1.9 mm. Philadelphia (Fairmount Park). Two examples.

This species differs from *pubescens* in its smaller size, more slender hind body but broader prothorax, the elytra being distinctly more than twice as wide as the prothorax in that species, in its narrower head, less elongate antennae and rather less prominent eyes. The types have been undescribed in my collection for about thirty years.

Philophuga Mots.

This genus is said by G. H. Horn to be closely allied to *Calleida*, differing only by the fourth tarsal joint being emarginate and not bilobed; but others, and among them Chaudoir and Bates, regard the two genera as being much less closely related—in fact assignable to different groups. The difference in form of the fourth tarsal joint is certainly a very important and radical character, but I have not given the “Troncatipennes” sufficient general study to warrant any decided opinion at this time. The tarsal claws are strongly pectinate as in *Cymindis* and *Calleida*. Our species, omitting *castanea* Horn, which can be recognized readily by its marked difference in color, being castaneous and not blue or green as is always the case in the others, may be identified by the following short comparative diagnoses:

- Elytra more elongate, never less than a third to two-fifths longer than wide and only feebly or moderately narrowed basally. 2
 Elytra shorter, a fourth longer than wide or but slightly more and more narrowed basally, the body smaller in size. 5
 2—Prothorax distinctly wider than long, the elytral striæ deep, the intervals convex. Blue-green in color, shining and metallic in lustre, the antennæ black, the first three joints each with a small ferruginous spot beneath; head feebly rugose and punctate at the sides, the frontal impressions broad, short and oblique; prothorax wider than long, convex, subcordate, the sides rounded, the base retracted; lateral margin finely reflexed, broader posteriorly, the hind angles feebly elevated, obtuse; base obliquely truncate at the sides; surface with the transverse impressions and median stria deep, transversely rugulose, obsolete on the disk, the base punctate and with a few punctures anteriorly; elytra subconvex, subparallel, the humeri rounded, the apices rectilinearly truncate, the striæ deep, punctate, the intervals convex and with small sparse punctures; legs black. Length 9.4 mm.; width 4.6 mm. Colorado (near Long's Peak). [*horni* Chd.] **amœna** Lec.
 Prothorax about as long as wide, the elytral striæ fine or shallow, the intervals flat. 3
 3—Sides of the prothorax strongly sinuate posteriorly, becoming nearly parallel and straight toward the angles, which are but little more than right and bluntly rounded. Body smaller than usual in this section, pure deep blue in color throughout and only moderately shining above, greenish-blue and metallic beneath, the legs black; head slightly narrower than the prothorax, not strongly, sparsely punctate, impunctate medially, the antennæ black, the three basal joints pale, the first black along its entire upper surface, the second and third with an apical black spot above; prothorax slightly wider than long, the sides rounded, converging and sinuate posteriorly, the

base almost truncate, being only very feebly arcuate from side to side, three-fourths the maximum width and four-fifths as wide as the apex, which is rectilinearly truncate from side to side; surface punctured basally and near the apex and with fine transverse rugulation throughout the width, convexly declivous laterally to the fine reflexed margin, along which there is a broad impression which is feeble medially, becoming deep at base, the angles not much reflexed; elytra not quite one-half longer than wide, distinctly broadest and inflated posteriorly, where they are two and a fourth times as wide as the prothorax, the apical truncatures feebly oblique and straight; humeri distinct, rounded; striæ very fine, not at all impressed and finely, rather closely punctate, the intervals with single more or less irregular series of extremely fine and feeble punctures, the third with two punctures. Length 8.0 mm.; width 3.0 mm. Texas..... *canora* n. sp.

Sides of the prothorax oblique and at most feebly and very gradually sinuate basally, the angles very obtuse..... 4

4—Body larger and broader than in the preceding, bright blue or green, sometimes blue, with the head and prothorax vivid green; surface much more shining; head broader, sometimes barely narrower than the prothorax, sparsely punctate; antennæ nearly similar but a little less slender; prothorax nearly similar in general form and sculpture, except that the transverse rugulosity is coarser and deeper, the base much more arcuate and the apex very feebly sinuate; basal angles very obtuse, slightly reflexed and sharply defined; elytra broader, not so inflated posteriorly and less narrowed thence to the base, the apices more sinuously truncate, the striæ, intervals and punctation nearly similar, the lustre however much more shining; under surface metallic green or blue, the legs black. Length 8.3–9.0 mm.; width 3.0–3.7 mm. Texas, Colorado and Mexico. [*subcordata* Chd.]

viridicollis Lec.

Body rather less elongate, moderately convex, not quite so shining, deep violaceous-blue throughout above and beneath, varying to greenish-blue, the legs black; head broader, barely narrower than the prothorax, the neck broader; punctures sparse and feeble; antennæ nearly similar; prothorax small, fully as long as wide to a little wider, the sides broadly rounded anteriorly, thence converging and very broadly, just visibly sinuate to the angles, which are very obtuse, slightly blunt and distinctly reflexed; base feebly, very evenly arcuate from angle to angle; surface and general features nearly as in *viridicollis*, except that the sides are broadly and more deeply impressed, the impression obsolete only apically, the basal angles more blunt and the base relatively somewhat narrower; elytra evidently shorter, nearly similar, except that the striæ are less fine, more impressed and with the punctures stronger and still more close-set, the intervals less shining and with much less fine, more numerous and more broadly confused punctures, the interstitial punctures in *viridicollis* being extremely fine and feeble and arranged in more or less evident irregular single series. Length 8.7–9.0 mm.; width 3.2–3.3 mm. Arizona..... *cærulea* n. sp.

5—Sides of the prothorax gradually very sinuate basally, the angles scarcely more than right and sharply defined. Body only moderately stout, rather convex, strongly shining and bright green, sometimes bluish; under surface more obscure metallic green, the legs black; head not so elongate as in the preceding section, the eyes well developed, the antennæ shorter but similarly colored, the three pale basal joints being partially black above; prothorax distinctly wider than the head, a very little wider than long, the sides rounded, the base broadly, evenly arcuate, only slightly narrower than the apex, which is evenly though but just visibly sinuate; surface broadly, evenly convex almost to the finely reflexed lateral margins, with a basal impression near each angle, prolonged obliquely forward parallel with the sides and gradually evanescent; punctures fine and sparse throughout, coarser apically and basally, the rugulosity almost obsolete; elytra a fourth longer than wide, not quite twice as wide as the prothorax, inflated apically, much narrowed basally, the humeri distinct, rounded, the surface sparsely but strongly, unevenly punctate and somewhat rugose, the striæ fine, feebly impressed and finely, not very closely punctate; besides the ordinary punctures of the intervals, there are some widely scattered, which are notably larger, especially on the third, fifth and seventh intervals. Length 7.3–7.6 mm.; width 2.6–2.9 mm. California. [*cyanea* Mots.].....*viridis* Dej.

Sides of the prothorax oblique but only very broadly and but just visibly sinuate, the angles broadly obtuse; hind body relatively broader. .6

6—Form rather strongly ventricose, moderately convex, very shining, bright bluish-green, the elytra rather more bluish, the under surface more obscure blue-green, the legs black as usual; head moderate though but barely narrower than the prothorax, the eyes large and prominent, the surface with a few fine feeble scattered punctures toward the sides, the eyes rather more convex than in *viridis*, the antennæ slightly more elongate; prothorax small, slightly wider than long, the sides rather strongly rounded anteriorly, the basal angles very obtuse, not evidently reflexed but narrowly deplanate and not rounded; base transverse, oblique at the sides, very distinctly narrower than the apex; surface convex, finely, transversely and sparsely strigilate, the punctures scarcely evident except toward the periphery, having at base near each side a large and very deep rounded impression, not prolonged anteriorly; elytra a fourth longer than wide, barely twice as wide as the prothorax, inflated posteriorly, the apices transversely and rectilinearly truncate, with very broadly rounded external angles, the humeri much rounded; striæ extremely fine, not evidently impressed and with very fine, well separated punctures, the intervals nearly flat, barely at all undulated and with very sparse, excessively fine and scarcely discoverable punctures. Length 7.2 mm.; width 2.8 mm. California—Levette collection.

lauta n. sp.

Form nearly similar but with relatively less narrow head and prothorax, moderately convex, shining, the elytra very faintly alutaceous, deep violaceous-blue, the anterior parts tinged with green, the under

surface shining blue-green, the legs black; head proportioned and punctured nearly as in the preceding, the antennæ similarly colored but notably stouter; prothorax more distinctly wider than the head, evidently wider than long, similar throughout to the preceding, except that the base is relatively broader and equal to the apex, and that the surface laterally is much more strongly and closely rugose in transversely anastomosing folds, the basal impressions nearly similar and not anteriorly prolonged but broader, less sharply or deeply impressed and more rugosely punctured; median stria deep and conspicuous between the very feeble transverse impressions; elytra a little more than a fourth longer than wide, similarly inflated posteriorly and much narrowed basally, four-fifths wider than the prothorax, the apices more sinuato-truncate, with the external angles less broadly rounded; striæ moderately fine, feebly impressed and finely but strongly, very closely punctate, the intervals very nearly flat and smooth, shining and with extremely fine, widely and irregularly scattered punctures, which however are more easily observed than in *lauta*; two punctures of the third interval distinct; scutellar stria long and forming the oblique basal part of the first stria as usual. Length 6.8 mm.; width 2.7 mm. Colorado (Boulder Co.).....*puella* n. sp.

The only two species described above that are in any way mutually very closely allied are *viridicollis* and *cærulea*; the prothorax is very evidently more narrowed at base and more impressed laterally, and the elytra more strongly sculptured and slightly more abbreviated, in the latter, and there is a decided difference in the scheme of interstitial punctuation, the punctures in *viridicollis* being extremely small and feeble and arranged in irregular single series, while in *cærulea* they are much stronger, more numerous, though sparse, and are more irregularly scattered over the entire surface. Whether or not *cærulea* may be the true *subcordata* of Chaudoir, however, I have no means of knowing, but am of the opinion that they are not the same, in view of the very local range of species in the Arizona region, with its sharply separated and isolated mountain systems. The above description of *amæna* Lec., is drawn from the original, as I do not possess an example of that species. It is distinguished principally by the unusually transverse prothorax, deep elytral striæ and convex intervals; the coloration of the three basal joints of the antennæ, as recorded by the author, is also quite different from the usual type, as stated above under *canora*.

Calleida Dej.

The following species is to be placed near *viridipennis* Say:

Calleida striata n. sp.—Anterior parts slender when compared with the hind body, moderately convex and shining, black, the head and pronotum with rather obscure violaceous lustre, variegated with metallic green, of which a vitta parallel to and not very near the thoracic margin from apex to base is especially noticeable; elytra vivid green, gradually with feebly cupreous lustre broadly toward the sides; head as wide as the prothorax and distinctly longer, the sides long and gradually oblique behind the eyes; antennæ slender, obscure, the first three joints pale; prothorax slightly longer than wide, nearly as in *viridipennis* but much more broadly and feebly rounded at the sides, the latter less converging basally, the angles rounded and the base subequal in width to the apex; elytra similar in shape but rather less elongate and more narrowed from posterior third to the base, two and one-half times as wide as the prothorax, the striæ fine, obsoletely and irregularly sculptured or punctulate and deeply impressed, the intervals notably convex, especially toward the sides, not visibly punctate but much more strongly micro-reticulate than in *viridipennis*, the third with the usual two setigerous punctures; under surface metallic green; legs black, the tarsi finely sulcate above, the fourth joint deeply bilobed. Length 8.8 mm.; width 3.2 mm. Florida (locality unrecorded).

Differs from *viridipennis* in its narrower form, coloration, deeper striæ, more convex and subalutaceous intervals, relatively narrower base of the elytra and many other features.

Cymindis Latr.

Some of the synonymy proposed by the late Dr. Horn in this genus is unaccountable, even aside from the well known taxonomic idiosyncrasies of that author. For example, the small *brevipennis* of Zimmermann, is not only said to be the same as *planipennis* Lec., but is made the type of his description of the latter. These species are as widely separated as any two in the section of the genus having broadly reflexed thoracic margins and resemble each other in scarcely any respect whatever. *Planipennis* is one of the largest species and seems to be rare; I am fortunate enough to find a single example in my collection, taken in Colorado; it would weigh fully as much as six average individuals of *brevipennis*. Again *venator* Dej., does not seem to be the same as *americana*, as shown by the male sexual characters, at least of species so identified below, and *abstrusa* Lec., is not exactly *cribricollis* Dej., though these mistakes are more excusable. *Cribricollis* is however not very definitely

determinable; the recorded characters are unusually indeterminate, for the descriptions of Dejean seldom betray any lack of clearness or precision, and I have been obliged to select from a number of closely allied forms, one that seems to best fit his definition. Our species are rather more numerous than hitherto supposed but are difficult to differentiate very satisfactorily by description; however, the following table may prove of some aid in identification:

Prothorax transverse, with the side margins more or less broadly reflexo-explanate.....	2
Prothorax about as long as wide, more convex and with the side margins only very finely reflexed.....	17
2—Body intense black throughout and virtually glabrous, the legs black. Lustre above highly polished throughout, the elytra not in the least alutaceous; head nearly as wide as long, evidently narrower than the prothorax, the eyes large and prominent; palpi and antennæ rufo-piceous, the latter slender; front with a few fine sparse punctures, except medially, and some long rugæ near the eyes; prothorax fully a third wider than long, the sides rounded anteriorly, moderately converging, oblique and straight posteriorly to the angles, which are very obtuse but minutely subprominent; base broadly, strongly arcuate, as wide as the slightly less sinuate apex; surface with extremely minute, remote and scarcely visible punctures, becoming more distinct toward the periphery, more broadly toward the basal angles, with a feeble rounded impression at base at about outer fourth, the lateral margins rather broadly concave, the edge reflexed; elytra about a third longer than wide, three-fifths wider than the prothorax, distinctly wider posteriorly than at base, the striæ rather fine but impressed, finely and closely punctate, the intervals moderately convex, each with a single irregular series of widely spaced punctures, which are barely visibly larger than those of the striæ; scutellar stria long; apices broadly sinuate externally; legs and tarsi black, the tarsi beneath, and the tibiæ apically, with numerous coarse fulvous hairs; male with two short feeble parallel impressions at the apex of the abdomen. Length (♂) 9.5 mm.; width 3.7 mm. Mexico (Tres Marias, Morelos),—Wickham.	
	<i>*atrolucens</i> n. sp.
Body piceous to blackish, sometimes variegated with paler, the legs always pale.....	3
3—Head and disk of the prothorax concolorous with the elytra.....	4
Head and prothorax throughout paler than the elytra, or at least the major part of the elytra, the latter sometimes pale basally, having only about two setigerous discal punctures situated on the third interval.....	14
4—Pronotum with very sparse and rather fine punctures, a little larger and less sparse toward the periphery; elytra with about four setigerous punctures on the third interval.....	5
Pronotum with coarser punctures, more close-set and generally more even in distribution.....	6

5—Body only feebly convex, varying unusually in size, shining, blackish-piceous, the sides of the prothorax, flanks of the elytra nubilously, epipleura, median parts of the sterna and the legs paler, testaceous; surface with rather short stiff sparse pale hairs; head rather closely and strongly punctured, except the median parts of the front; antennæ moderate, fuscous, paler basally; prothorax a fourth to nearly a third wider than long, nearly as in *cribricollis* in general character but with the punctures much smaller and very sparse; elytra oblong-oval, slightly widest posteriorly, the sides broadly rounded, about a third longer than wide and two-thirds wider than the prothorax, which is relatively smaller than in *cribricollis* and less transverse; apices obliquely sinuato-truncate; surface smooth and shining, the striæ fine but rather strong, very finely and closely punctulate, the intervals nearly flat, each with a very irregular single series of sparse impressed punctures, which are distinctly larger than those of the striæ, the third alone apparently having three or four slightly larger setigerous punctures. Length (σ^7 ρ) 8.2–11.0 mm.; width 2.9–3.9 mm. Mexico (Colonia Garcia, Sierra Madre Mts., Chihuahua),—C. H. T. Townsend. . . **uniseriata* Bates

Body narrower and rather more convex, paler rufo-piceous in color throughout, the legs and antennæ still paler, shining, the elytra rather opaque in the female, alutaceous in the male; hairs short, stiff, fulvous, in single series on the stria intervals; head strongly, sparsely punctured, broadly toward the sides, three-fourths as wide as the prothorax, the antennæ two-thirds as long as the body, slender and filiform; prothorax two-fifths wider than long, widest near apical third, formed nearly as in *cribricollis*, with broadly concave and reflexed side margins and feebly prominent obtuse basal angles, the surface however more broadly and evenly convex, not very coarsely but strongly, very sparsely punctate, broadly transversely impressed and more coarsely, closely and subrugosely punctured near the base, the median stria fine but rather impressed, not entire; elytra two-fifths longer than wide, about one-half wider than the prothorax, slightly broadened posteriorly, the apices broadly, evenly arcuate, becoming straight or very faintly sinuate only near the broadly rounded outer angles; striæ excessively fine and faint, not at all impressed and extremely finely, not at all closely punctulate, the flat intervals each with a single very irregular series of very fine and feeble punctures, not differing much from those of the striæ, the third, fifth and seventh with a series of slightly larger setigerous punctures, about four in number on each; male with a small rounded impression at each side of the middle at the apex of the last ventral segment. Length (σ^7 ρ) 8.2–9.0 mm.; width 3.0–3.3 mm. Utah (Marysvale),—H. F. Wickham. . . *evanescens* n. sp.

6—Elytra broadly, obliquely arcuate at apex, not at all sinuate and with very broadly rounded outer angles; intervals three, five and seven each with about four setigerous punctures; pronotum more broadly and evenly convex throughout the width. 7

Elytra feebly obliquely sinuato-truncate at apex, the third interval alone

- with about three setigerous punctures; pronotum more convex medially, rather less obviously so in *unicolor*. 9
- 7—Elytra longer, about a third longer than wide. Form rather stout, moderately convex, piceous-black, the pronotal and elytral reflexed margins, epipleura, under surface except laterally and the legs, pale testaceous; pubescence not close but rather long and stiff, pale yellowish; head coarsely, rather closely punctate, except the median parts of the front, distinctly narrower than the prothorax, with broad neck and only moderately prominent eyes; antennæ (♀) long, slender, pale in color, fully half as long as the body; prothorax about one-half wider than long, the sides somewhat irregularly rounded anteriorly, convergent and straighter posteriorly to the rather prominent though obtuse angles; base broadly arcuate, distinctly narrower than the apex; surface very coarsely, rather closely punctate, sparsely so medially, where minute sparse punctures are also more or less obvious; sides only moderately broadly reflexed; elytra distinctly wider posteriorly than at base, two-thirds wider than the prothorax, feebly alutaceous, especially in the female, the striæ very fine, unimpressed, even and finely, rather closely punctulate, the flat intervals with confused sparse punctures which are similar to those of the striæ; male with the last ventral evenly, circularly rounded and having, posteriorly on the disk, a very feeble obtuse carinule. Length (♂ ♀) 11.0–11.5 mm.; width 3.8–4.1 mm. Arizona (locality unrecorded). *arizonensis* Schf.
- Elytra distinctly shorter, about a fourth longer than wide. 8
- 8—Form, size and coloration nearly as in the preceding but rather narrower; head similarly well developed, with broad neck and still larger though only moderately prominent eyes, the punctures not quite so coarse and more widely separated; antennæ (♀) pale, long and slender, almost half as long as the body; prothorax less transverse, but little over a fourth wider than long, the outline nearly similar, except that the basal angles are more prominent, right and sharp, the short sinus before them decidedly deep and the base relatively wider though evidently narrower than the apex, the apical angles similarly very broadly rounded; surface with coarse and deep though rather well separated punctures, a little sparser medially but not intermingled very evidently with remote punctules, the sides rather more broadly deplanato-concave, the edge less strongly reflexed; elytra oblong-oval, only just visibly widest subposteriorly, one-half wider than the prothorax, the striæ fine and finely punctate but a little stronger than in the preceding, the intervals very faintly convex, more shining, with the confused punctures somewhat less sparse and a little stronger; inclined hairs slightly more numerous and much shorter. Length (♀) 11.0 mm.; width 3.9 mm. Colorado. Levette collection. *laticollis* Say
- Form still narrower, the size much smaller; color piceous but slightly less blackish, similarly pallid at the margins and beneath; hairs stiff, rather numerous, pale yellowish and much longer than in *laticollis*; head notably smaller, with narrower neck, similar eyes and closer and coarse punctures, which are wanting antero-medially; antennæ

pale, rather shorter than in either of the preceding; prothorax two-fifths to nearly one-half wider than long, throughout nearly as in *arizonensis* but with the coarse punctures more numerous and less irregularly disposed; elytra almost as in *laticollis* throughout and evidently shining in both sexes, the striæ still slightly finer and similarly minutely punctate, the intervals flat or virtually so, with fine and evidently less numerous confused punctures, each bearing a much longer stiff hair, those of the fourth and sixth intervals sometimes displaying a tendency to arrangement in a single irregular line; fifth ventral in the male having a small and shallow but very distinct apical sinus, which is perfectly constant in the four males at hand, the surface apically sometimes with a very broadly obtuse faint raised axial line. Length (σ^7 ♀) 9.8–10.5 mm.; width 3.5–3.75 mm. Arizona (Benson),—Dunn and also New Mexico.

zuniana n. sp.

- 9—Seventh elytral stria impressed and similar to the others or but slightly feebler. Body not stout, very moderately convex, rufo-piceous in color, the side margins, under surface, except the blackish margins and sides of the abdominal segments, and the legs, still paler; head well developed, the neck wide, the eyes only moderate in size or prominence; punctures very coarse, deep, rather close-set, largely wanting antero-medially; antennæ rather long and slender; prothorax two-fifths wider than long, the sides very evenly rounded anteriorly, converging, becoming gradually feebly and broadly sinuate posteriorly to the obtuse though slightly prominent angles; surface nearly even, coarsely, rather closely, somewhat unevenly punctate, the sides very broadly concave, strongly reflexed and diaphanous as usual, the general form as in *cribricollis*; elytra a little longer than in that species but otherwise nearly similar in form, the striæ notably coarser and deeper, especially in the female, with the punctures everywhere more close-set and confined to the limits of the striæ, the intervals very feebly convex and with numerous punctures, irregularly but not densely disposed and rather smaller than those of the striæ; fifth ventral (σ^7) almost evenly rounded behind, the surface longitudinally convex and with a very short faint raised axial line at tip. Length (σ^7 ♀) 9.5–9.8 mm.; width 3.4–3.5 mm. New Mexico..... *acomana* n. sp.

Seventh stria unimpressed, very feeble and sometimes almost obliterated..... 10

- 10—Sides of the pronotum only moderately broadly but rather more abruptly reflexed, the pronotal punctures slightly less coarse. Color blackish-piceous throughout above, except, as usual, at the side margins, the under surface varying from almost entirely black to almost completely pale; head rather short, with only moderately wide neck and prominent eyes, the punctures coarse, larger than those of the pronotum and rather close-set; antennæ testaceous, rather slender; prothorax in outline nearly as in *cribricollis* but more evenly convex from side to side and with evidently less coarse though equally close-set punctures; elytra narrower, more than two-fifths longer than wide, three-fifths wider than the prothorax, the striæ fine (σ^7) but

- sometimes coarser and distinctly impressed (φ), finely, not very closely punctate, the punctures confined to the striæ except basally; intervals flat to slightly convex, the punctures confusedly arranged, rather close-set and coarse, being much larger than those of the striæ; concave side margins very distinct; male characters nearly as in the preceding. Length ($\sigma^7 \varphi$) 9.0-9.5 mm.; width 3.2-3.3 mm. A single pair, unlabeled in the Levette collection but probably from Colorado. [*?hudsonica* Lec.]..... **unicolor** Kirby
- Sides of the pronotum very broadly concave and gradually very strongly reflexed, the punctures always notably coarse, moderately close-set and more or less irregular in distribution, the reflexed part of the sides very thin, diaphanous and testaceous with the punctures very coarse but sparser..... **11**
- 11**—Gutter forming the elytral margins strong and conspicuous; body larger and broader, the coloration nearly uniform..... **12**
- Gutter unusually fine though evident; body smaller and narrower, the elytra more or less variegated with paler tint..... **13**
- 12**—Elytra shining in both sexes. Color blackish-piceous, the margins pale, the under surface paler medially, the legs piceo-testaceous; pubescence rather short, coarse, yellowish; head relatively rather small but not much narrowed at the neck, the eyes prominent; antennæ testaceous, slender; punctures very coarse, close-set; prothorax large and transverse, fully one-half wider than long, rounded almost evenly at the sides, which rapidly converge, becoming slightly sinuous posteriorly, the angles right, prominent and sharp; base feebly arcuate, as wide as the apex, which is broadly, rather deeply sinuate, with rounded angles; punctures coarse, deep and rather close-set, the median stria very fine and inconspicuous; elytra not quite a third longer than wide, only about two-fifths wider than the prothorax, slightly inflated posteriorly, the striæ fine, shallow, having unevenly spaced punctures which are generally notably wider than the striæ, the flat intervals with irregularly scattered and very fine punctures, much smaller than those of the striæ; male with a very faint and rather broad sinuation at the apex of the rounded last ventral segment. Length ($\sigma^7 \varphi$) 8.5-9.2 mm.; width 3.5-3.8 mm. Lake Superior; also New York (Lake Champlain). [*reflexa* Lec.]..... **cribricollis** Dej.
- A**—Similar in size and external form to *laticollis* but with the elytra shining; general characters as in *reflexa* (*cribricollis*) but larger, with broader elytra and less coarsely punctured head and prothorax, the latter also more narrowed behind and with the posterior angles less obtuse. Length 10.2 mm. Washington State.
abstrusa Lec.
- Elytra strongly alutaceous at least in the female. Color blackish-piceous, the under surface pale piceo-testaceous, more obscure at the sides, the prosternum and propleura blackish; hairs rather short, numerous and of an unusually dark fulvous tint; head nearly as in the preceding but relatively larger, the punctures very coarse but not so close-set; antennæ dark testaceous, long, slender and filiform, rather more than half as long as the body; prothorax relatively much

smaller than in *cribricollis*, not quite one-half wider than long, in outline nearly as in *cribricollis* but more narrowed at base, the latter evidently narrower than the apex; punctures slightly less coarse than in the preceding and evidently smaller than those of the head; elytra fully a third longer than wide, evenly oblong-oval, being moderately and very gradually inflated posteriorly, fully two-thirds wider than the prothorax; side margins finely testaceous as usual; striæ rather fine, very even, the punctures rather strong, unevenly spaced but not or only slightly exceeding the striæ in width, the seventh stria obliterated but represented by a regular series of distinct punctures; intervals nearly flat, with the punctures irregularly disposed, small, rather more distinct than in *cribricollis* though much smaller than those of the striæ, about as numerous as in that species. Length (♀) 10.5 mm.; width 3.75 mm. Colorado (Boulder Co.).....**rupimontis** n. sp.

- 13—Form less broad than in *cribricollis*, the size smaller, feebly convex, strongly shining throughout, blackish-piceous, the under surface and legs nearly as in *rupimontis*, the elytra very gradually becoming testaceous laterally and basally; hairs nearly as in *cribricollis*; head comparatively small, nearly as in the latter species throughout, except that the neck is somewhat narrower, the antennæ similar; prothorax nearly similar throughout; elytra fully a third longer than wide and two-fifths wider than the prothorax, the striæ and intervals nearly similar; male with fully the posterior half of the last ventral abruptly totally devoid of punctulation, in a way not evident in the male of *cribricollis*. Length (♂) 8.4 mm.; width 3.2 mm. British Columbia (Caribou District).....**marginata** Kirby

Form moderately slender, somewhat more convex, piceous-black, the elytra rufo-piceous, gradually testaceous toward the humeri; under surface blackish, paler medially, the legs pale; pubescence scanty, stiff, yellowish, moderately short; surface very shining throughout; head rather small, with unusually narrowed neck and very prominent eyes, the punctures very coarse, deep, close-set, broadly wanting antero-medially; antennæ slender, testaceous; prothorax throughout nearly as in *cribricollis*, except that the apex is relatively narrower, the base being decidedly broader than the distance between the broadly rounded apical angles, the punctures also are rather less close-set; elytra also very nearly as in *cribricollis* but narrower and with the outer angle at apex much more broadly and less abruptly rounded; striæ and general punctuation even finer and more superficial; male with the last ventral as in *cribricollis*. Length (♂) 9.5 mm.; width 3.3 mm. New Hampshire (White Mts.).

alticola n. sp.

- 14—Larger species, not under 10 mm. in length, the elytral sculpture very fine and feeble..... 15
Small species, much under 10 mm. in length, the elytral sculpture strong..... 16
15—Form stout, very moderately convex, shining throughout in both sexes, piceous, the head and prothorax but slightly paler and more rufous than the elytra, which are sometimes very faintly paler

basally; hairs very short, pale and easily denuded; head well developed, with rather large but not very prominent eyes, finely, sparsely punctate, rugose antero-laterally; antennæ fusco-testaceous, only moderately long; prothorax one-half wider than long, the sides almost evenly rounded from apex to base, the angles very obtuse, rounded, with a very small faint sinus immediately before them; base about as wide as the apex, very broadly lobed, the lobe broad but distinct, the sides laterally feebly oblique and broadly rounded; apex slightly sinuate, the angles broadly rounded; surface with a rather deep subbasal impression at each end of the lobe, not evident in any of the preceding forms and obsolete inwardly very near the middle, very broadly concave and moderately reflexed and diaphanous at the sides; punctures fine, very sparse, more distinct and closer peripherally; elytra but feebly convex, two-fifths longer than wide, slightly wider subposteriorly than at base, fully two-thirds wider than the prothorax, obliquely sinuato-truncate at apex, the striæ very fine, barely at all impressed, very minutely and closely punctulate, the intervals nearly flat, with rather sparse and very fine, irregularly distributed punctures, which are even smaller than those of the striæ, the latter almost invisible under transverse illumination; legs rather short, pale, the under surface testaceous, the abdomen blackish peripherally. Length (♀) 12.0 mm.; width 4.8 mm. Colorado. New Mexico—LeConte.....**planipennis** Lec.

Form stout, moderately convex, shining, the elytra (♀) slightly alutaceous; color pale testaceous, the elytra piceous, shaded very feebly, paler basally and near the sides; under surface and legs as in the preceding; head moderate, very finely, feebly and remotely punctulate, feebly rugulose antero-laterally, the antennæ filiform and testaceous but rather stout and barely longer than the head and prothorax in the female; prothorax about two-fifths wider than long, the sides rounded anteriorly, oblique and converging posteriorly, becoming nearly straight, the basal angles sharply marked and slightly prominent; base as in the preceding but relatively a little wider than the apex, which is more feebly sinuate, with the angles better marked and less rounded; surface rather less broadly but more deeply concave and strongly reflexed laterally, the basal impressions similar but much feebler, the punctures altogether obsolete discally, but becoming fine and rather close in the lateral and basal impressions, the surface throughout with some very feeble transverse rugosity; elytra more than two-fifths longer than wide, three-fourths wider than the prothorax, feebly inflated subposteriorly, the striæ extremely fine, not at all impressed and composed of a close succession of very fine shallow punctures, the flat intervals with the punctures very sparse, irregular and so minute and feeble as to be discoverable with difficulty, apparently tending to irregular single series. Length (♀) 10.3-10.8 mm.; width 4.0-4.1 mm. Arizona (Douglas, Cochise Co.),—F. H. Snow. Three examples.

blanda n. sp.

16—Body not very stout, moderately convex, shining, testaceous, the elytra black, with feeble metallic lustre, abruptly rufous along the

sides and in a well defined humeral spot; abdomen only very slightly obscure peripherally; hairs short, stiff, yellowish; head rather small, with somewhat more prominent eyes than in the preceding two forms and differing very radically in being coarsely, deeply and rather closely punctate, except antero-medially, the antero-lateral rugosity extremely fine and feeble; antennæ longer and much more slender than in *blanda* but nearly as in *planipennis*; prothorax two-fifths wider than long, the sides rather unevenly rounded, converging posteriorly, becoming feebly sinuate toward the basal angles, which are very sharp and prominent; base subevenly and feebly arcuate, much narrower than the apex, which is sinuate, the angles broadly rounded; surface coarsely, very deeply, irregularly but on the whole not very closely punctate throughout, only moderately concave and reflexed at the sides and much more narrowly than in either of the preceding, the basal impressions broad, feeble and diffuse as usual in the *cribricollis* type; elytra only about a fourth longer than wide, almost parallel, being but very slightly broader behind the middle than at base, two-fifths, or slightly more, wider than the prothorax, the striæ very distinct, strongly, rather closely punctured and feebly impressed; intervals feebly convex, finely but strongly, rather sparsely and irregularly punctate, the punctures a little smaller than those of the striæ, the two punctures of the third interval indistinct. Length (♂) 8.0–8.3 mm.; width 2.8–2.9 mm. Kansas. [*cribricollis* Lec. nec Dej., and *planipennis* Horn nec Lec.]. Three examples. **brevipennis** Zimm.

Body still smaller and rather narrower, strongly shining and testaceous throughout, the elytra piceous-black, without metallic glint, very gradually testaceous basally and evenly so throughout the width in about basal third and also along the sides; hairs only moderately short, stiff and yellowish; head nearly as in the preceding but larger and except that the punctures, though rather coarse, are very much smaller and sparser; antennæ rather long and slender; prothorax relatively smaller and less transverse, otherwise almost similar, except that the punctures are less coarse and much sparser and the sides more broadly concave and reflexed, relatively almost as widely so as in *planipennis*; elytra about a fourth longer than wide, much more inflated posteriorly and much wider posteriorly than at base, almost four-fifths wider than the prothorax; striæ rather finer and shallower, the punctures relatively stronger, somewhat wider than the striæ and rather widely but irregularly separated, the intervals flat, finely, sparsely and irregularly punctate, the punctures very much smaller than those of the striæ, much finer than in *brevipennis* and, on some of the interval, tending to unilinear arrangement; apices obliquely and feebly arcuate, becoming just visibly and broadly sinuate externally but more evidently so than in *planipennis*, where they are arcuate, becoming simply straighter externally. Length (♀) 7.8 mm.; width 2.7 mm. Wyoming (Green River).

bipartita n. sp.

17—Elytra black or in part nubilously paler, the striæ coarsely punctate. 18

Elytra black, with a well defined oblique humeral red spot; striæ very finely punctured. 19

18—Form moderately stout, convex, strongly shining in both sexes, deep black, with fine diaphanously pale side margins, the elytra with very feeble bluish metallic lustre; stiff hairs rather longer than usual, especially long and bristling on the anterior parts; head convex, very coarsely punctate, slightly narrower than the prothorax; antennæ slender, pale testaceous; prothorax very nearly as long as wide, the sides broadly undulato-rotundate, moderately converging posteriorly, the angles sharply prominent and reflexed; base strongly, unevenly arcuate, much narrower than the apex, which is sinuato-truncate; surface coarsely, deeply and closely punctate, the side margins very narrowly and inconspicuously reflexed; elytra two-fifths longer than wide, three-fourths wider than the prothorax, much wider posteriorly than at base, the apices obliquely truncate, rounded a little internally; striæ coarse but only feebly concave, very coarsely, rather closely punctate, the punctures smaller and more distant laterally and apically, the intervals nearly flat but inclined inwardly, except apically, their outer limits more prominent than the inner, finely, sparsely and irregularly punctate; under surface black or paler, the sterna very coarsely, closely punctate; male with the last ventral evenly rounded. Length (♂ ♀) 9.5–11.0 mm.; width 3.3–3.7 mm. Rhode Island to Pennsylvania, also New York (Lake Champlain). [*pubescentis* Dej.].

pilosa Say

Form less stout, the size smaller, similar in coloration and lustre, except that the elytra have a nubulously testaceous spot at the humeri; head similar and with very prominent eyes but with the punctures much less coarse; prothorax similar in form but with the hind angles very obtuse and blunt, though rendered prominent by a similar adjacent situation, the punctures numerous but much less coarse, in fact having but little more than half the diameter and relatively less close-set, the erect hairs shorter and less conspicuous, like those of the head; elytra nearly similar in form though rather less inflated posteriorly and with the apices almost evenly arcuato-truncate, with the outer angles more broadly rounded; sculpture almost similar in every way; third interval with two setigerous punctures, which are not observable or extremely indistinct in *pilosa*; under surface and legs nearly similar, the sterna rather less coarsely or closely punctate. Length (♂) 9.0 mm.; width 3.0 mm. New York (Lake Champlain). *borealis* Lec.

Form still narrower and much smaller, strongly shining throughout, piceous-black, the elytra obscure testaceous, feebly and very indefinitely shaded with piceous posteriorly; hairs rather short, not bristling; head rather small, with very prominent eyes, rather strongly but sparsely punctate, the antennæ slender, testaceous; prothorax rather small though wider than the head, as long as wide, the sides unevenly rounded, converging posteriorly, the angles sharp, prominent and abruptly reflexed; base broadly, evenly arcuate, much narrower than the apex; surface deeply but not very

coarsely, sparsely punctate, the punctures gradually a little stronger and less sparse peripherally; side margins very finely beaded and not at all diaphanous; median stria more impressed than in either of the preceding; elytra a third longer than wide, one-half to three-fifths wider than the prothorax, gradually broadening a little posteriorly, the apices obliquely and evenly arcuato-truncate; striae relatively very coarse, much more so than in either of the preceding, feebly concave and very coarsely punctate in a manner similar to *pilosa*, the intervals much narrower, being but little wider than the grooves and similarly inclined in plane, each however with but a single series of very fine and distant punctures; under surface and legs colored as in *pilosa*, the sterna less coarsely punctate; last ventral of the male smooth and polished, almost evenly and broadly rounded, the surface impunctate, except a few fine punctures basally. Length (σ^7 ♀) 7.5–7.8 mm.; width 2.5–2.7 mm. Pennsylvania (Rockville and Buena Vista Spring) and New York (Lake Champlain).....**neglecta** Hald.

19—Form rather stouter, larger in size, moderately convex, black, the side margins finely reflexed and rufo-diaphanous, the under surface obscure testaceous, blackish laterally; hairs short and stiff, more abundant than usual; head strongly, closely punctate, largely impunctate anteriorly, the eyes very prominent; prothorax evidently wider than the head, about as long as wide, the sides uneven, generally subangulate before the middle, feebly converging posteriorly, becoming sinuate at the obtusely prominent, blunt and reflexed angles; base broadly, unevenly arcuate, as wide as the apex; punctures coarse, deep and close-set but somewhat unevenly distributed; side margins finely reflexed, gradually more so basally; elytra not quite one-half longer than wide, two-thirds wider than the prothorax, slightly dilated posteriorly, the apices obliquely arcuato-truncate, with the outer angle moderately broadly rounded; striae somewhat fine but deep, impressed, finely, very closely punctate, the intervals slightly convex, rather densely and uniformly punctate throughout, the punctures about equal to those of the striae. Male with the last ventral broadly but rather deeply bi-impressed at apex, the impressions separated by a very obtuse low ridge, ending posteriorly at the very distinct though small apical sinus; surface between the impressions and the apical margin very complexly virmiculato-rugose. Length (σ^7) 13.5 mm.; width 4.3 mm. Pennsylvania (Rockville),—A. B. Champlain.

venator Dej.

Form more slender, the size smaller; coloration and pubescence similar; head a little smaller and with the eyes very prominent, the antennae relatively much longer, being three-fifths as long as the body; prothorax narrower, fully as long as wide, the sides less angulate, irregularly rounded, rather more converging basally, the prominent basal angles rather more sharply defined and more reflexed; punctures coarse and deep but still more uneven and generally less close-set than in the preceding; elytra a little shorter, about two-fifths longer than wide, similarly oblong-oboval and two-thirds

wider than the prothorax, but with the sides apically more gradually rounding into the apices, the latter nearly similar but narrower; striæ nearly similar, the intervals a little more convex, the punctures not quite so large and distinctly less close-set. Male with the last ventral evenly convex, with scarcely a trace of impressions but with a very narrow and feeble raised median line apically, the margin with a small and feeble median sinus, the surface without trace of the peculiar vermiculate peripheral sculpture of *venator*. Length (♂) 10.8 mm.; width 3.8 mm. New Jersey. **americana** Dej.

The two species *elegans* and *cribrata* of LeConte, are omitted, as I have no representative of them at present; the first is a remarkably distinct species by reason of the form and sculpture of the prothorax, which is as long as wide, with finely reflexed margins, apparently almost as in *americana*, combined with elytral punctures in single series; it must, in fact, be a decidedly isolated form and is not properly classified by Horn, who places it in the division having the broadly reflexed thoracic margins of *cribricollis*. *Cribrata* is related to *pilosa* but has the prothorax very coarsely and sub-confluently punctured at the sides. The identification of *marginata* Kirby, given above, is a surmise and may not be correct; *marginata* is considered to be a synonym of *cribricollis* by LeConte and Horn; whether this be true or not, the species above described under the name *marginata*, while closely related to *cribricollis*, is manifestly not identical. LeConte states that the elytral striæ in *planipennis* are impunctate; the punctures are very small and close-set and could be overlooked very easily; they contrast remarkably in size with the strong strial punctures of *brevipennis*, which nevertheless was placed in synonymy by Horn, as previously remarked. In regard to *americana* and *venator* of Dejean, it can only be said that I have at hand two distinct species of the *americana* type, but as Dejean does not describe the male sexual characters in either of his species, it is uncertain whether or not they represent them correctly. The author in describing the interstitial sculpture of *americana*, states that it is "confertissime punctatissimis" and, if this means anything, probably is intended to convey the idea that the punctures are very strong and dense; this would suit the species called *venator* above very well, but not so assuredly the smaller and more slender form, which I have identified as *americana*, where the punctures are evidently less dense than in *venator*. The original type of *americana* seems to have been immature, being described as brown.

It may be that I do not have the true *americana* at all, as it is by intimation said to be punctured as in *venator*, for it may be a Georgian species sent by the elder LeConte. In this case *americana* Csy., would still be undescribed. Individuals of the *americana* type seem to be rare, though there are certainly a number of species. I have two females, not mentioned above in the descriptions and not mutually the same specifically; they are labeled "Colorado" but possibly in error; one of them seems to match the assumed type of *venator* rather well and the other is like *americana* Csy., in some respects but distinctly differs in others.

Helluomorpha Lap.

The uniformly testaceous species of this genus with unelongated prothorax, are very similar in general appearance among themselves but are nevertheless distinguished by some good minor characters. *Texana* Lec., is rather abundant in Clark Co., Kansas, and also in Texas; it varies a good deal in size; *ferruginea* Lec., seems to be less frequently taken and I have but two examples—from Texas and Jemez Springs, New Mexico. The three following allied species have not yet been described:

Helluomorpha latitarsis n. sp.—Moderately depressed, rather shining, testaceous throughout, the pubescence moderate and pallid, the hairs from the series bordering the convex intervals oblique in contrary senses; head scarcely four-fifths as wide as the prothorax, sparsely, irregularly and not very strongly punctate, the eyes very prominent; antennæ rather short, broadly compressed, the joints beyond the fourth about as long as wide, impressed and glabrous medially toward base; prothorax slightly wider than long, the sides evenly and strongly rounded, converging from about the middle, becoming parallel and nearly straight basally, the angles rather acute and sharp, rendered slightly prominent by a minute sinus just before them; base slightly wider than the apex, broadly sinuate, becoming abruptly anteriorly oblique at the sides; apex feebly sinuate medially, without lateral angles; surface linearly impressed along the middle, rather coarsely but sparsely punctured throughout, finely reflexed at the sides from apex to base and with a large deep latero-basal impression; elytra two-thirds longer than wide, three-fourths wider than the prothorax, slightly inflated posteriorly, the apices broadly and evenly arcuate; surface with moderate glabrous costæ, separated by wider concave lines, which are rather closely, not very coarsely and confusedly punctate throughout; legs stout, the hind tarsi broad and flattened, the third joint barely at all longer than wide and parallel-sided. Length (♂) 15.0 mm.; width 4.8 mm. Arizona (locality not indicated).

Differs from *texana* in the finer, more confused elytral punctures, longer antennal joints and broader, more parallel tarsi, and, from *ferruginea*, in its broader antennæ, with quadrate and not oblong joints, smaller elytral punctures and in the tarsal characters.

Helluomorpha papago n. sp.—Much smaller than the preceding and more slender but otherwise nearly similar, shining and testaceous, the elytral hairs stiff, longer and less numerous but similar in arrangement; head as wide as the prothorax, with prominent eyes and convex, sparsely and feebly but not finely punctate surface; antennæ less broad, the joints fully as long as wide or somewhat longer, sculptured as in *texana* and *latitarsis*; prothorax as in the preceding but smaller and with the punctures much finer and still sparser, closer laterally and a little coarser basally, the basal angles similar though less acute and more retracted; elytra three-fourths longer than wide, one-half wider than the prothorax, similar in general form, the costæ broader and much feebler, separated by feeble channels, which are not at all wider than the costæ and having each two rather close-set series of very moderate, widely and irregularly separated punctures; tarsi much more slender, more convex and with the joints not parallel; abdomen finely, sparsely punctate. Length (σ^7) 12.3 mm.; width 3.8 mm. Arizona (probably southern).

Distinct from all the other species in elytral sculpture and in the sparse and very irregular punctuation; the head is relatively larger and more convex than in *latitarsis*.

Helluomorpha languida n. sp.—Rather small in size and not much dilated, shining and testaceous; head very nearly as wide as the prothorax, irregularly and rather coarsely but feebly and sparsely punctate, the eyes moderate in size but very prominent; antennæ more slender than usual, extending to basal fifth of the elytra, the joints nearly as *ferruginea* but not quite so distinctly elongated; prothorax not quite as long as wide, less rounded at the sides than usual, feebly narrowed posteriorly where the sides become gradually rather deeply and broadly sinuate, the hind angles somewhat prominent though obtuse, sharply defined and more reflexed, the usual minute sinus before them obsolescent; base transverse, sharply oblique at the sides, much wider than the sinuate apex; surface coarsely, deeply and sparsely punctate, the median line broadly impressed and the basal impressions large and deep, shorter and less linear than in *ferruginea*; disk, at each side of the median impression, broadly almost impunctate; elytra short, only slightly broadened from base to near the apex, the apices broadly rounded as usual, three-fifths to two-thirds longer than wide, four-fifths wider than the prothorax, the smooth costæ broadly and feebly elevated and somewhat indefinite, the concave lines broader than the costæ, with two irregular series of moderate punctures, the latter becoming much confused laterally and apically; tarsi unusually slender. Length (σ^7 ♀) 12.0–13.0 mm.; width 3.9–4.1 mm. Texas (Brownsville),—F. H. SNOW. Four examples.

Much smaller than *ferruginea*, with which this is probably most closely allied and with feebler, less definite elytral costæ, relatively smaller prothorax and somewhat shorter elytra; the antennæ are of nearly the same type; the depressed lines of the elytra are more sparsely, less strongly and more bilinearly punctate, the punctures being less broadly confused throughout than in *ferruginea*. The head is much more distinctly narrower than the prothorax in *ferruginea* than it is in *languida*.

Lebia Latr.

The species *furcata* of LeConte, belonging to the group *Aphelogenia* Chd., is composite in most collections, comprising a number of distinct forms having mutually a very close superficial resemblance. The body is pale yellow throughout above and beneath, the elytra with three black vittæ, not attaining the apex, the one on the suture bifurcating basally. G. H. Horn discovered one of these allied species, having entirely black legs, and named it *depicta*. Those in my collection may be known as follows:

- Head much narrower than the prothorax in both sexes. 2
 Head subequal in width to the prothorax, relatively much larger than in the preceding group. 5
 2—Legs black throughout, the femora sometimes pale at the extreme base, the tibiæ always black; antennæ and palpi black, the former with the basal joint pale; elytral striæ wholly impunctate. Length 6.0–6.3 mm.; width 2.75 mm. New Mexico (Las Vegas) and Colorado (Boulder Co.). Montana—Horn. *depicta* Horn
 Legs not entirely black, the femora pale basally, the tibiæ pale externally except in *debiliceps*, the tarsi always black. 3
 3—Sutural black vitta, at the middle of the length, much narrower than the adjoining pale vitta. Body larger, distinctly broader in outline; head, prothorax and antennæ nearly as in *furcata*; elytra decidedly broader, more oblong, less inflated posteriorly, the sutural vitta bifurcating from just before the middle, the striæ impunctate; legs as in *furcata*, only moderately slender. Length 7.3 mm.; width 3.2–3.3 mm. California (Mendocino Co.). *sonomæ* n. sp.
 Sutural black vitta never decidedly narrower than the pale vitta. 4
 4—The sutural vitta at the middle about equal in width to the adjoining pale vitta. Head well developed, with very prominent eyes; prothorax fully twice as wide as long; elytra about a third longer than wide, the striæ not distinctly punctate externally, the sutural black vitta bifurcating from just before the middle. Length 6.8–7.2 mm.; width 2.9 mm. Wisconsin (Bayfield) to Louisiana (Alexandria). Lake Superior and Platte River—LeConte. *furcata* Lec.
 The sutural vitta very much broader, the portion on each elytron equal

in width to the adjacent pale vitta. Head and prothorax both relatively smaller and more shining; neck narrower, the prothorax distinctly less than twice as wide as long; elytra shorter, barely a fourth longer than wide, the external striæ stronger and more evidently punctate, the broad sutural vitta bifurcating only in basal third; legs more slender, deep black throughout, the femora very pale, black at tip. Length 5.8–6.0 mm.; width 2.65 mm. Indiana.

debiliceps n. sp.

- 5—Body smaller and rather narrower than in any of the preceding species but otherwise similar, the legs and antennæ colored as in *furcata*; head nearly smooth, just visibly narrower than the prothorax, the eyes large and prominent; prothorax not quite twice as wide as long, the sides abruptly reflexed; elytra smooth, with feeble impunctate striæ, the sides more rounding or more gradually converging behind, not a third longer than wide, the sutural vitta as wide as the adjacent pale vitta, bifurcating in basal third, the basal part of the two arms more rapidly inflated than in any other of the group. Length 5.6 mm.; width 2.25 mm. Texas (Brownsville),—Wickham.

amnicola n. sp.

I think there can be but little doubt of the specific value of any of these forms; the constancy of elytral ornamentation is parallel to that prevailing in a large group of the genus *Disonycha*.